

IN THE
Circuit Court of the United States
NINTH CIRCUIT,
NORTHERN DISTRICT OF CALIFORNIA.

THE SPRING VALLEY WATER WORKS (a corporation),

Complainant,

vs.

THE CITY AND COUNTY OF SAN FRANCISCO
(a municipal corporation), THE BOARD OF SUPERVISORS OF THE CITY AND COUNTY OF SAN FRANCISCO, and James P. Booth et al.,
members of and constituting said Board of Supervisors,

Defendants.

No.
13,395
IN
EQUITY

THE SPRING VALLEY WATER COMPANY (a corporation),

Complainant,

vs.

THE CITY AND COUNTY OF SAN FRANCISCO
(a municipal corporation), THE BOARD OF SUPERVISORS OF THE CITY AND COUNTY OF SAN FRANCISCO, and James P. Booth et al.,
members of and constituting said Board of Supervisors,

Defendants.

Nos.
13,598
and 13,756
IN
EQUITY

**Defendants' Brief and Argument on
Final Hearing.**

PERCY V. LONG,

City Attorney.

THOMAS E. HAVEN,

Assistant City Attorney,

Solicitors for Defendants.

SAN FRANCISCO HISTORY ROOM



SAN FRANCISCO
PUBLIC LIBRARY

SAN FRANCISCO PUBLIC LIBRARY




3 1223 90149 8791

REFERENCE BOOK

Not to be taken from the Library

C. E. GRUNSKY



Digitized by the Internet Archive
in 2012 with funding from
California State Library Califa/LSTA Grant

REF
345
sp82
1903-06
V. 5

S. F. PUBLIC LIBRARY

81-05

Index and Synopsis of Brief and Argument

	Page
PRELIMINARY STATEMENT.....	2
LEGAL PRINCIPLES INVOLVED.....	5
Regulation of a public service company is a legisla- tive function.....	7
Source or nature of this legislative power.....	9
The Court has power of review.....	13
The Court cannot fix new rates. It simply de- termines whether or not a rate is confiscatory...	13
Reasonableness of rates involves three general con- siderations:	14
What is a fair valuation of the plant?.....	15
Fair valuation implies present value.....	16
The rules for valuation in eminent domain do not apply in valuation for regulation of rates	19
Present value of a public service corporation con- sists of two elements—a private estate, and a public estate	23
Did the Board of Supervisors fail to consider necessary elements of value as alleged?.....	27
Element of value as a going concern.....	27
Element of franchise.....	35
Valuation of a franchise.....	51
Element of value because of the ability of the water system to expand for future use and of the property now held for use in immediate future.....	54
Element of value due to absence of competi- tion	55

Element of value due to physical conditions attending purveying of water in San Francisco.....	56
Elements of value due to comparative excellence of works because of skill and foresight in construction and perfecting system	57
Determination of present value.....	58
Stock and Bond Issue.....	59
Substitutional Cost	60
Actual investment	61
Purchase price	66
Burden is on the company at every stage of the proceedings to show by actual facts that the rates are not reasonable.....	67
Cases in which proof has been held insufficient	69
Proof necessary on final hearing.....	69
What is a fair rate of Income?.....	74
In general	74
Contentions by complainant.....	78
Depreciation as part of the return.....	78
Hazard of the enterprise.....	78
The Ultimate result.....	80
The reasonable value of the service.....	83
Comparative systems and rates.....	86
ARGUMENT ON EVIDENCE.....	87
Minutes of complainant.....	87
Stipulation that minute books and account books of complainant are in evidence.....	87

VALUE OF COMPLAINANT'S PROPERTIES..... 88

Entire absence of evidence upon which the Court can base a finding that value of complainant's prop- erties is any greater than that fixed by defend- ant's witnesses	89
--	----

COST OF COMPLAINANT'S PROPERTIES..... 90

Two expert accountants testified:.....	91
Mr. Reynolds for complainant,.....	91
Mr. Wenzelburger for defendants.....	91
Cost figures of Mr. Reynolds.....	92
Cost figures of Mr. Wenzelburger.....	92
Close agreement of the accountants.....	92
Missing Cash Books	92
Suburban Company's books.....	93
Mr. Wenzelburger refused access thereto.....	93
Suburban Company subsidiary of complainant company	94
Details of Mr. Wenzelburger's figures on cost.....	94
Eliminations by Mr. Wenzelburger.....	95
Coupons on Bonds.....	98
Commission on Bonds.....	98
Discount on Bonds.....	98
Discount on Stock.....	98
Expense on Bonds.....	99
Discount on Silver.....	99
Interest	99
Taxes	100
Franchises	100
Charter	100
Damages, Beard case.....	100
Operating San Pedro engine and pump.....	101
Putting in order and setting Meters.....	101
Contingent Expenses.....	101
General Expenses.....	101

	Page
Details of Mr. Reynolds' figures.....	101
Balance sheet by Mr. Reynolds on cost and investment at December 31, 1904.....	102
Deductions from Mr. Reynolds' total cost figures	103
PROPERTIES NOT IN USE.....	104
Deductions by Mr. Dockweiler admitted in full by Mr. Reynolds	105
Trustee Lands.....	107
Deductions by Mr. Dockweiler admitted in part by Mr. Reynolds.....	109
Deductions by Mr. Dockweiler disputed by Mr. Reynolds	109
Properties admitted by Mr. Schussler to be out of use	110
Total cost of properties not in use.....	110
Comparison of deductions by Mr. Schussler with those contended for herein.....	110
Extra width of Crystal Springs Dam.....	111
Excess of area of Crystal Springs Dam over other dams	112
Amount represented by portion of dam not presently useful	114
Deductions admitted in part by Mr. Reynolds:.....	115
San Gregorio	115
Sausalito Water Works.....	116
Lobos Creek and Flume.....	116
Locks Creek Line.....	117
Lafayette Park Pump.....	119
Pilarcitos Flume	119
Crystal Springs old Pumping Station.....	125
Thomasson Lot, Ashbury Heights Pump.....	125
Meters	125

	Page
Deductions disputed by Mr. Reynolds:	127
Potter charges for wells, boilers, etc.....	127
Old Office building and lot.....	128
Branch Flume at Pilarcitos.....	129
Pilarcitos Old Side Flume.....	129
San Francisco City Water Works.....	133
Telegraph lines to Pilarcitos, San Andreas and Lake Honda	141
Crystal Springs Upper Dam.....	142
Ocean View Pumps.....	142
Upper Pilarcitos Dam.....	143
Calaveras Dam	145
Policy of complainant to develop other prop- erty before Calaveras.....	147
San Antonio improvements.....	150
Properties admitted as not in use by Mr. Schussler: ..	152
Portion of Colma Gulch concrete dam.....	152
Portion of Lake Honda dividing wall.....	153
Polhemus tract, Crystal Springs.....	154
Stevens Creek lands.....	156
Arroyo Valle lands.....	156
Small dam at Pilarcitos.....	157
Additions by Mr. Reynolds to cost figures:	158
Interest during construction.....	158
Estimated amount of construction expense wrongly charged to Operating Expenses....	158
Estimated amount of interest paid on capital invested in properties not in use.....	159
Finding by Mr. Wenzelburger on amounts errone- ously charged to Construction Account.....	162

AMOUNT OF INVESTMENT IN COMPLAINANT'S PROPERTIES BY STOCKHOLDERS AND BONDHOLDERS	165
Mr. Reynolds' estimate of investment value.....	165
Actual cash investment in works.....	167
Amount computed by Mr. Reynolds as the difference between sums accruing at rates of interest used by him and amount actually paid in dividends....	167
<i>Table No. I—Investments and Profits..... (facing)</i>	168
True profits of stockholders is represented by divi- dends plus undivided profits re-invested in the works	168
Admission to this effect by Mr. Reynolds.....	169
Stockholders received considerably more from their investments in complainant company than they would have if their money had been deposited with Savings Banks or loaned at rates of interest paid by complainant on its own loans.....	171
Actual Investment on all properties of complainant...	171
Actual Investment on those properties which are in use and useful.....	172
Close agreement of these actual investment figures with those obtained on cost.....	172
 BONDS	172
Par value of outstanding bonds.....	172
First Mortgage Bonds.....	173
Cash received thereon.....	173
Second Mortgage Bonds.....	173
Cash received thereon.....	173
Third Mortgage Bonds.....	173
Cash received thereon.....	173

	Page
Bonds redeemed	173
General Mortgage Bonds.....	174
Total cash investment of bondholders at January 1, 1904	175
Par value of bonds outstanding at January 1, 1904, and certain later dates.....	176
 VALUE OF COMPLAINANT'S PROPERTIES AS DETERMINED BY THE MARKET PRICE OF ITS STOCKS AND BONDS.....	
Capital stock of Spring Valley Water Works.....	177
Amount issued	177
Capital Stock doubled by the new incorporation with- out any additional payment being made by the stockholders	178
Market price of capital stock according to affidavits of certain stock and bond brokers at date of said affidavits (June 9, 1904).....	178
Total market value for whole capital stock.....	179
Purchase of first issue of General Mortgage Bonds by Bank of California.....	179
Selling price thereof.....	180
Total market value for all outstanding bonds.....	180
Floating debt	181
Market value of the whole of complainant's proper- ties as established by its stock and bonds.....	182
Market value of properties in use and useful.....	182
Close agreement of market value of stock, bonds and floating debt with cost figures by Messrs. Rey- nolds and Wenzelburger.....	182
 DIVIDENDS AND PROFITS.....	
Total results shown by Table No. 1.....	183

	Page
Balance of Profit and Loss Account at January 1, 1904	183
Total profits realized by stockholders based on Mr. Reynolds' exhibits	183
Total profits according to Mr. Wenzelburger	184
Dividends and undivided profits of the San Francisco City Water Works.....	184
Improper deduction by Mr. Reynolds from amount of undivided profits.....	186
Correct amount of total profits realized by stockholders	187
Average returns on capital actually invested at certain periods	188
Total undivided profits up to 1879 exceeded the capital actually paid in.....	189
Legislative and legal expenses at time of adoption of New Constitution	189
Improper deduction by Mr. Reynolds from undivided profits discussed in connection therewith	189
Heavy expenditures by the President in litigation authorized	189
Mr. Wenzelburger of opinion that a considerable portion of these legal expenses was charged through General Expense Account.....	190
Owing to missing cash books no details are obtainable of heavy expenditures in the early eighties in General Expense Account (running into tens of thousands of dollars for many months).....	190
Large sum paid President of complainant company in 1880 for valuable services, applied as increase of back pay for nearly six years previous.....	191
Items of \$204,995.05 and \$1500.00 appearing to credit of Construction Account in 1898 as "Cash Returned," without explanation as to where the sums came from, why they were paid in, or what they represent	191

MR. ADAMS' TABLE COMPUTING RATE OF INTEREST UPON COST OF PROPERTY REPRESENTED BY MONEY PAID FOR INTEREST AND DIVIDENDS BY COMPLAINANT COMPANY	192
Mr. Adams' table based on complainant's exhibits before Board of Supervisors.....	192
Mr. Adams' figures proved incorrect by Construction Accounts of complainant and Table No. 1.....	192
<i>Table No. 2—Rate of interest upon the cost of the whole of complainant's property (not in use, as well as in use and useful), represented by dividends and interest on bonds and floating debt, 1879 to 1899.....</i>	<i>195</i>
 SUMMARY OF FIGURES ON COST, INVESTMENT AND PROFITS	 196
From an actual cash investment of \$9,177,496.82, the stockholders have derived a total profit of more than three times such investment, and still have a property which they claim is of a value of from forty to seventy million dollars.....	197
 ESTIMATES OF PRESENT VALUE OF COMPLAINANT'S PROPERTY	 198
<i>Table No. 3. Structural Properties.....(facing)</i>	<i>198</i>
<i>Table No. 4. Lands, Water Rights and Rights of Way</i>	<i>198</i>
.....(facing)	
<i>Table No. 5. Recapitulation of Tables Nos. 3 and 4</i>	<i>198</i>
.....(facing)	
 STRUCTURAL PROPERTIES	 199
Wrought Iron Pipe.....	200

	Page
Mr. Schussler's estimates on all wrought iron pipe based on the same unit per pound, regardless of the difference in cost of construction of the various pipe lines and the superior grade of certain of the pipe.....	200
Mr. Schussler adopted his estimate of the cost of the most expensive line as the basis for all other lines	200
<i>Table No. 6. Details of Mr. Schussler's unit of 10.87 cents per pound, used by him at 10.6 cents in his estimates on all wrought iron pipe..</i>	
	203
Superior quality of iron for Alameda 54-inch pipe	204
Plate iron for San Andreas pipe:.....	206
Two different figures furnished by Mr. Schussler	207
Replacement of portions of the 30-inch pipe necessitated through constant trouble and necessity for repairs.....	208
Portion of the 44-inch pipe originally in bed of Crystal Springs Reservoir.....	210
Cost price of plate iron for the 44-inch pipe..	211
Plate iron for Crystal Springs and Alameda 36-inch pipe:.....	213
Two different figures given by Mr. Schussler	213
Estimate on cost of best laminated iron by Mr. Grunsky	215
Cost figure given by Mr. Schussler.....	217
Plate iron for Pilarcitos pipe.....	217
Rolled in Scotland.....	218
Salt water damaged coming round the Horn.	219
30-inch pipe broke several times.....	220
Contract for making a portion of the pipe let to an old tinsmith in spite of Mr. Schussler's protest that it would mean poor work	221

	Page
Pipe not chipped and caulked.....	222
Rivets	223
Making and laying of pipe:	224
Contracts entered into.....	224
Contract prices on the various pipe lines....	225
In all cases at a certain rate per lineal foot	225
Mr. Schussler based all his estimates on the making and laying of pipe on the weight cost of the highest priced pipe	225
Tabulation showing unfairness of this method	226
Extra fittings and improvements on the two last pipe lines built.....	227
Cost of specials and connections on the vari- ous pipe lines.....	228
In the Alameda 54-inch very much great- er than any other pipe line.....	228
Dipping of Pipe:	
Mr. Schussler's details on the Alameda 54- inch	229
Cost should be calculated superficially, not by weight	229
Large portion of the dipping done by Mr. Carey.....	230
Statement by Mr. Carey as to quan- tity dipped per day and amount of wages paid.....	230
Comparison of cost of labor based on Mr. Carey's testimony with that obtained by using Mr. Schussler's unit.....	232
Huge disproportion between Mr. Schussler's and Mr. Carey's figures on quantity of materials used	233

	Page
Freight cost much heavier on Alameda 54-inch pipe than on the other pipes.....	235
Much wider and deeper trench required for the Alameda 54-inch pipe.....	235
Disproportion between cost figures on digging of trench, etc., on Alameda 36-inch pipe and amount arrived at on Mr. Schussler's unit..	236
<i>Table No. 7. Showing discrepancies between Mr. Schussler's estimates on pipe lines and facts shown by cross-examination and minutes.....</i>	<i>239</i>
Amount that can reasonably and fairly be deducted from Mr. Schussler's estimates on wrought iron pipe.....	240
Amended units on all pipe lines.....	240
Cost of pipe complete in the ground.....	241
Mr. Grunsky's figures.....	241
Mr. Adams' estimate.....	241
Figure given by Mr. Schussler in previous investigation	241
Colonel Mendell's estimate.....	242
Cost of steel pipe laid complete.....	243
Difference between cost of steel and laminated iron pipe.....	245
Summary of unit figures by various engineers on cost of pipe laid complete.....	245
Dates of construction of pipe lines.....	246
Alameda 54-inch Pipe Line.....	247
Mr. Grunsky on cost.....	247
Alameda 36-inch Pipe Line.....	248
Contract prices for making and laying.....	248
New section	248
Comparison of Mr. Schussler's estimate with those of Messrs. Adams and Schuyler...	250
No safety factor.....	251

	Page
Crystal Springs Pipe Line.....	252
Cost given by Mr. Schussler in previous investigation	252
Comparison of estimates of Messrs. Schussler, Adams and Schuyler.....	254
No data available on the trenches on this line	255
Contract prices for making and laying.....	255
Pilarcitos Pipe Line.....	256
San Andreas Pipe Line.....	257
Comparison of estimates.....	257
<i>Table No. 8. Comparison of estimates of Messrs. Schussler, Adams and Schuyler on Pipe Lines</i>	
	260
Conclusions as to Wrought Iron Pipe.....	261
Points on which the Alameda 54-inch pipe exceeded in expenditure the other pipe lines	261
Submarine Pipe Line	262
16-inch Submarine Pipe.....	262
Contract price	262
Excess of Mr. Schussler's estimate over cost	263
22-inch Submarine Pipe.....	263
Contract price for making and laying.....	263
City Pipe System	264
<i>Table No. 9. City Pipe System.....(facing)</i>	
	264
Estimates of all witnesses agree, excepting Mr. Schussler	265
Cast Iron Pipe.....	266
Mr. Schussler's units vary according to pavements under which pipe was laid and the district in which pavement was situate..	266
City divided arbitrarily into three districts by Mr. Schussler.....	266

	Page
Units per ton for the pipe itself adopted by Messrs. Schussler and Adams.....	266
Cost of cast iron pipe.....	267
From complainant's books of accounts..	268
From complainant's minutes.....	268
Comparison of estimates of Messrs. Schus- sler and Adams.....	271
Detail and total differences in their esti- mates	271
Basis of Mr. Schussler's estimate on cast iron pipe	272
Based on new pipe of the first class qual- ity of that laid in 1903 and 1904.....	272
A large portion of the pipe laid over forty years	273
Total lengths of cast iron pipe laid in the streets at certain dates.....	273
Pipe taken up on country mains generally re- used in City Pipe System.....	274
Mr. Schussler's figures on cost of digging trenches, laying pipe and replacing pave- ments based on certain work done in 1904	276
Had no data on the depth of the various trenches	276
Unreliability of data used by Mr. Schus- sler for determining classes of pave- ments	277
Mr. Schussler's estimates based, as to cost of laying, on the kind of pavement in exist- ence at July 1, 1904.....	277
Mr. Schussler of opinion that complain- ant should benefit by changes in pavement since pipe was laid, i. e., the increased cost of laying under, say, bitumen, over the original lay- ing under macadam or basalt.....	277

	Page
Estimates by Mr. Schussler in previous Water Rate Investigations.....	280
Obstructions under pavements.....	283
<i>Table No. 10. Comparison of estimate prices on cast iron pipe laid in San Francisco with those given for Los Angeles and Pasadena</i>	285
Bernal Heights Tunnels.....	286
<i>Table No. 11. Drifting and bricking of Bernal Heights Tunnels</i>	286
Alameda Creek System	289
<i>Table No. 12. Alameda Creek System... (facing)</i>	290
Sunol Filter Galleries.....	289
Cost figures on the Works at Sunol.....	291
Sunol Dam	292
Laguna Creek Ditch.....	293
Sunol Aqueduct	294
Pleasanton Improvements	294
Niles Dam and Aqueduct.....	295
Niles steel bridge.....	300
<i>Table No. 13. Crystal Springs System (facing)</i>	300
Crystal Springs System	301
Crystal Springs Dam.....	301
<i>Table No. 14. Crystal Springs Dam, Concrete Work</i>	302
Concrete Plant	304
Present and reduplication value compared..	306
Outlet shaft, tunnels, etc.....	306
<i>Table No. 15. Outlet Works</i>	307
Howard Cut	311
Cost figures on Crystal Springs Dam.....	313
Roads at Crystal Springs.....	315
Upper Crystal Springs Dam.....	317
Six Mile Tunnel.....	319
<i>Table No. 16. Drifting and brickwork of Six Mile Tunnel</i>	320

	Page
Lake Merced Drainage System	321
Portion of Colma Gulch concrete dam and ma- sonry canal gone out of use.....	321
<i>Table No. 17. Lake Merced Drainage System</i> <i>(facing)</i>	322
Colma Gulch Drainage System.....	326
<i>Table No. 18. Pilarcitos System</i>.....(<i>facing</i>)	326
Pilarcitos System	327
Pilarcitos Dam	327
Mr. Emery had contract to build.....	328
<i>Table No. 19. Excavation, Puddle and Em-</i> <i>bankment, Pilarcitos Dam</i>	328
Labor employed on construction mainly Chinese	331
Comparisons between estimates of Messrs. Schussler, Adams and Schuyler.....	334
Comparison of units given by Mr. Hering on Stormville Reservoir, New York, with Mr. Schussler's units on Pilarcitos Dam	340
Estimate by Mr. Schussler in previous Water Rate Investigation.....	342
Cost figures	343
Mr. Schussler's estimate based on memory and computations from old surveys.....	344
Error in calculations on removal of top soil and embankment work admitted by Mr. Schussler	348
Defective Construction of Pilarcitos Dam...	354
Pilarcitos Waste Weir Tunnel.....	357
<i>Table No. 20. Brickwork, Pilarcitos Waste</i> <i>Weir Tunnel</i>	358
Discrepancies in Mr. Schussler's quantities..	359
Upper Pilarcitos Dam.....	360
Cost figures	361

	Page
Pilarcitos Side Flume.....	362
Cost figures	366
Pilarcitos Tunnel No. 1.....	366
<i>Table No. 21. Brickwork, Pilarcitos Tunnel</i>	
<i>No. 1.....</i>	367
Discrepancies in Mr. Schussler's estimate on	
Brickwork, Pilarcitos Tunnel No. 1.....	370
Defective construction of Pilarcitos Tunnel	
No. 1	374
Drifting of Tunnels on Pilarcitos System.....	375
Cost of reduplication less than original cost	
on drifting of Pilarcitos Tunnels.....	376
Pilarcitos Tunnel No. 2.....	380
<i>Table No. 22. Brickwork, Pilarcitos Tunnel</i>	
<i>No. 2</i>	380
Lake Honda Tunnel.....	382
<i>Table No. 23. Brickwork, Lake Honda Tunnel</i>	382
Cost figures on Lake Honda Tunnel and	
Tanks	384
Lake Honda Screen House.....	384
San Andreas System.....	385
San Andreas Dam.....	385
<i>Table No. 24. San Andreas System</i> <i>(facing)</i>	386
Cost figures on San Andreas Dam.....	386
Mr. Schussler had no more accurate data for	
his estimate than an old survey and his	
recollection	387
Error in calculation on removal of top	
soil and embankment work admitted by	
Mr. Schussler	388
San Andreas Waste Weir Tunnel.....	389
<i>Table No. 25. Brickwork, San Andreas</i>	
<i>Waste Weir Tunnel.....</i>	390

	Page
Discrepancies in Mr. Schussler's statements on bricking of San Andreas Waste Weir Tunnel	390
Bald Hill Tunnel.....	393
<i>Table No. 26. Brickwork, Bald Hill Tunnel..</i>	394
Discrepancies in Mr. Schussler's statements on bricking of Bald Hill Tunnel.....	395
Drifting of Bald Hill Tunnel.....	399
Davis Tunnel	402
Cost figures	402
San Andreas Screen House.....	402
Locks Creek Aqueduct	404
<i>Table No. 27. Locks Creek Aqueduct (facing)</i>	404
Locks Creek Tunnel No. 1.....	404
<i>Table No. 28. Brickwork, Locks Creek Tun- nel No. 1.....</i>	405
Locks Creek Tunnel No. 2.....	412
Pilarcitos Stone Dam.....	413
<i>Table No. 29. Pilarcitos Stone Dam.....</i>	414
City Distributing Reservoirs.....	417
Lake Honda Reservoir.....	417
<i>Table No. 30. City Distributing Reservoirs .....(facing)</i>	418
University Mound Reservoir.....	419
College Hill Reservoir.....	421
Clay Street Tank.....	422
Clarendon Heights Tank.....	422
Pumping Plants	424
<i>Table No. 31. Pumping Plants.....</i>	426
Clarendon Heights Pumping Station.....	427

	Page
MATTERS RELATING IN GENERAL TO THE STRUCTURAL PROPERTIES	428
Brickwork	429
Cost of Brick.....	429
Total Number of brick in structures.....	431
Average number of brick laid per man per diem..	431
Sand	432
Contract Work	434
<i>Table No. 32. Structures or Portions of Structures proved by the record to have been built by con- tract</i>	436
Comparison of Primal Cost and Reduplication Value	438
<i>Table No. 33. List of materials and labor, forming a part of the Structural Properties, on which the present cost to reproduce is declared to be equal or less than the primal cost.....</i>	439
Tunnels	440
Earth dams	440
Concrete dams	441
Stone dams	441
Pipe lines	441
Labor	442
<i>Table No. 34. Comparison of cost of labor in 1864 to 1870 with the rate of wage paid by complainant in 1903-04.....</i>	443
Reduplication cost not materially different from original cost according to complainant's wit- nesses	444
Mr. Adams	444
Mr. Hering	446
Irregular manner in which complainant's books were kept prevents comparison on all struc- tures between original cost and present cost to reproduce	448

For that portion of the structural properties, on which cost data is available, Mr. Schussler's estimates of present value are 44 per cent higher than the original cost of such structures	449
<i>Table No. 35. Discrepancies between Mr. Schussler's estimates of present value of the Structural Properties and cost prices obtained from the account books, minutes, contracts and testimony of contractors detailed previously</i>	<i>450</i>
Unreliability of Mr. Schussler's estimates.....	451
Mr. Schussler's estimates are neither trustworthy nor convincing and cannot be relied upon by the Court as a basis for a finding of value....	452
Reasons given for this conclusion are:.....	452
Discrepancies between Mr. Schussler's estimates in this suit and those given by him in previous Water Rate Investigations..	452
<i>Table No. 36. List of these discrepancies</i>	<i>453</i>
Differences between statements, contract prices, etc., furnished by Messrs. Higgins, Emery, Carey and Fifield and those given by Mr. Schussler	455
Discrepancies between cost as stated in the minutes and books of account and Mr. Schussler's estimates	456
Because Mr. Schussler's valuations are disproved by the preponderance of the testimony of the other witnesses.....	456
Because Mr. Schussler's answers to questions propounded on cross-examination were frequently so evasive and apparently insincere as not to inspire confidence	457

	Page
Because Mr. Schussler's testimony discloses a remarkable absence of knowledge with regard to the cost of sundry properties of complainant	458
Forty-nine instances of Mr. Schussler's professed ignorance on matters con- nected with the properties of com- plainant	458
Other witnesses for complainant adopt Mr. Schus- sler's figures as a basis for their own estimates...	461
Mr. Schussler's quantities adopted throughout...	461
Uncertainty of estimates due to failure to produce data as to cost.....	463
Statement by Mr. Dockweiler that the original cost of the various structures could be readily determined from data at the present time in possession of complainant.....	464
Yet Mr. Schussler testified that he had no cost data except in the last few years.....	466
Mr. Schuyler was advised by Mr. Schussler that it was impossible to obtain the cost of the systems and structures from the account books	466
Mr. Schuyler would have preferred to base his estimates on cost.....	467
Mr. Adams advised that no complete record was obtainable of prices paid for real estate and water rights, nor of the exact cost of the vari- ous structures	468
In making his appraisements, Mr. Grunsky would have preferred to have been guided by actual cost, but no satisfactory data was available..	469
Mr. Hering of opinion that the engineer should preserve cost data.....	469

	Page
Mr. Stearns had no knowledge as to actual cost of the works	470
Mr. Fitzgerald was unable to obtain details of the payment for the Calaveras properties.....	470
Failure of complainant to produce evidence of cost of the different portions of its plant deprives the uncertain and indefinite estimates of its witnesses of such weight as might otherwise be accorded to them as evidence.....	471
Well established rule of evidence that if a party fails to produce the best competent evidence within his possession, such other evidence as he may attempt to produce in its stead should be subjected to grave scrutiny and doubt....	471
Absence of missing cash books is unexplained except by an attempt of different officials of complainant to place the responsibility upon each other	472
Disappearance of these books warrants application of maxim—"Omnia praesumuntur in odium spoileris".....	472
No deduction made for deterioration of complainant's properties	473
Conclusions as to value of Structural Properties.....	474
Only four witnesses whose estimates should be considered (two for complainant and two for defendants)	474
The estimates of Messrs. Schussler, Hering, Stearns, Duryea and Fitzgerald disregarded	474
Total estimates of Messrs. Adams and Schuyler and average of the two witnesses.....	474
Total estimates of Messrs. Grunsky and Dockweiler and average of the two witnesses.....	475
Average of all four witnesses.....	475

The preponderance of the evidence in this entire record does not establish a higher value for the Structural Properties than Mr. Grunsky's estimate of \$15,277,244.00.....	476
---	-----

LANDS, WATER RIGHTS AND RIGHTS OF WAY.. 477

Basis of Mr. Schussler's estimate.....	477
--	-----

Comparison between Mr. Schussler's estimate and original cost	490
---	-----

Mr. Schussler's estimate of present value more than six times the amount of original cost...	492
--	-----

Differences between Mr. Schussler's several estimates of land values	492
--	-----

Can this Court base a finding of value upon the estimates of a witness whose figures increase in three years from \$12,892,000 to \$36,432,000, or from \$11,773,000 to \$31,932,000?.....	494
--	-----

<i>Table No. 37. Comparison of Mr. Schussler's estimates in this suit with those given by him in Water Rate Investigation of 1900-01.....</i>	495
---	-----

Land values as shown by purchases in 1904 and 1905 disclosed by the Minutes.....	496
--	-----

San Andreas reservoir lands.....	496
----------------------------------	-----

Land adjoining Sunol Filter Beds.....	497
---------------------------------------	-----

Exchange with Mr. Fifield of lands at Crystal Springs	497
---	-----

Land at Lake Merced.....	499
--------------------------	-----

Rights of Way	501
----------------------------	------------

Basis of Mr. Schussler's estimate.....	502
--	-----

Cost data	505
-----------------	-----

From Minutes	505
--------------------	-----

From Account Books.....	509
-------------------------	-----

Mr. Schussler's estimate about six and one-half times the original cost.....	511
--	-----

	Page
Rights of way gone out of use.....	511
Conclusions as to Mr. Schussler's valuation on Lands,	
Water Rights and Rights of Way.....	513
His estimates cannot be accepted as proof of value and must be rejected.....	513
Reasons therefor	513
Partial ownership of watershed lands.....	515
Peninsula System	515
Alameda Creek System.....	516
Claim by Bay Cities Water Co. to right to divert storm waters.....	518
Calaveras reservoir lands.....	518
Lake Merced	518
Poor quality of Lake Merced water.....	518
Value as measured by substitutional system.....	520
Proposed Tuolumne system adopted by several of complainant's witnesses as a basis for value..	520
Other sources of supply.....	520
Mr. Schussler	520
Mr. Schuyler	521
Mr. Grunsky	521
Even if the proposed Tuolumne system were the only possible substitute, the value of com- plainant's properties cannot be controlled by the cost of that system.....	523
Wide range of estimates of cost of the proposed Tuolumne system	525

BASES OF ESTIMATES OF OTHER WITNESSES	
FOR COMPLAINANT	526
Mr. Schuyler	526
Mr. Adams	531
Mr. Hering	546

	Page
Mr. A. S. Baldwin.....	553
Mr. Cyril Williams, Jr.....	553
ALLEGED INTANGIBLE VALUES.....	555
Franchise	555
Mr. Schuyler	556
Mr. Fitzgerald	556
Mr. Grunsky.....	556
Mr. Adams	559
Judge Farrington's decision in the 1908 case.....	562
Going Business	564
Based by Messrs. Adams and Schuyler on amount of alleged losses sustained prior to 1879 as stated in exhibit filed by complainant with the Board of Supervisors in 1880.....	564
This was computed at amount by which actual dividends during that entire period fell short of interest computed at current rates upon the par value of the capital stock.....	565
Computation should have been based upon the amount of capital actually invested in the business	565
Mr. Adams	565
Mr. Schuyler	570
Both Messrs. Adams and Schuyler admit that Go- ing Business value would disappear if com- plainant had received an amount equal to cur- rent rates of interest.....	576
Table No. 1 shows that the dividends of stock- holders to 1879 greatly exceeded amount which would have been earned on same in- vestment in other channels.....	576
Figures on Table No. 1 obtained from complain- ant's account books and exhibits of its finan- cial expert	578

	Page
Earnings of stockholders to 1879 were more than three times the amount of their investments.	579
Mr. Hering	580
Mr. Grunsky	580
Mr. Fitzgerald	582
Mr. Dockweiler	583
Reasons why no allowance can be made for this alleged element of value.....	585
Unit Value	587
No basis in the record for any finding of addi- tional unit value.....	589
Mr. Hering's Intangible Value	590
 FAILURE OF COMPLAINANT TO PROVE VALUE OF ITS PROPERTIES	 592
Entire absence of competent proof in complainant's evidence upon which a judicial finding of the total value of the properties can be based.....	592
Discussion of valuations of Lands, Water Rights and Rights of Way by different witnesses	593
Figures of Messrs. Schussler and Schuyler both based upon comparisons with proposed Tu- lumne system	593
Reasons why Mr. Schussler's valuations of lands and water rights cannot be relied on.....	593
Similar reasons as to Mr. Schuyler's estimates...	594
Mr. Adams' bases of value. Ten principles upon which he based his valuation.....	595
Mr. Adams' final estimate a mere matter of judg- ment	597
Mr. Hering's bases of value.....	597
Mr. Hering's valuation based upon hearsay evi- dence. Motion to strike out his estimate....	600
Reasons why Mr. Hering's total estimate cannot be used as a basis of valuation.....	601

Mr. Stearn's estimate based entirely on comparison with the Tuolumne system.....	602
Conclusions as to value are not proper expert testimony and are inadmissible. Ruling of Board of Appraisers in the State of Maine.....	602
Mr. Hering's opinion as to methods employed by expert witnesses in arriving at value of water works properties.....	605
No witness produced by complainant has furnished estimates upon which a judicial finding of value can be based. On final hearing decree must be based upon certainty.....	608
DEFENDANTS' CASE.....	609
Mr. Dockweiler testified both as to original cost and present value	609
Qualifications as an expert.....	610
Investigation made of problems in this case.....	612
Statement that complainant could have furnished cost figures	614
Estimate of present value of complainant's properties	615
Mr. Grunsky	616
Qualifications	616
Complainant's attempt to add to Mr. Grunsky's valuations	616
Basis of estimates of value of Alameda properties is their cost.....	618
Such estimate is in excess of amount which would have been allowed if the same figure had been adopted as used in the Peninsula System	620
Opinion as to permanent serviceability of the Sunol Filter Beds made no difference in his estimates	622

	Page
Would have preferred to have used cost figures..	623
Total estimates	623
Mr. Fitzgerald	624
Estimates based upon original cost of properties	624
Value of such estimates.....	625
Close agreement between his estimates and other cost figures	626
Messrs. Higgins, Emery, Carey and Fifield	626
Participated in construction of properties.....	626
Their evidence corroborated by Minutes of com- plainant	626
Mr. Schussler's estimates and statements con- tradicted by these witnesses.....	627
Defendants' Exhibits	627
 THE BEST EVIDENCE OF VALUE	628
The amount for which the whole of the properties were sold by the Spring Valley Water Works to the Spring Valley Water Company in 1903.....	628
Supreme Court has decided that the reasonable sale price is evidence, and more important evidence than original cost, of the value of properties of this kind.....	629
Chronological history from the Minutes of the sale to the Spring Valley Water Company...	630
Price agreed upon was payable five years after date; hence should be discounted to ascertain actual consideration.....	643
Value of property as established by above sale...	644
Value after deducting properties not in use.....	644
This sale was a bona-fide transaction and price paid represented true value of the properties	645
Cost price	648
Comparative value of experts' estimates	649

Considerations which should control in determining relative value of different estimates.....	649
Relative familiarity of different witnesses with complainant's properties	650

SUMMARY OF VALUE OF COMPLAINANT'S PROPERTIES NOW IN USE..... 651

RATE OF INCOME UNDER ORDINANCES..... 652

Income received in addition to water rates.....	652
Rents	653
Discrepancies in Mr. Reynolds' Exhibit No. 125 on rents	655
Summary on rents	663
Taxes	664
On properties not in use.....	665
Summary on taxes.....	667
Operating Expenses	668
Deductions of expenses on properties not in use and on water rate litigation.....	668
Deduction of outlays for construction improperly charged to Operating Expenses.....	675
Deductions by Mr. Wenzelburger from Operating Expenses	678
Coal error	678
Bond expense	680
Proxies	681
Incorporation expense	681
Service connections	681
American Bank Note Co.....	684
Hydrants set	684
Expense of Mr. Schussler to Washington... ..	685
Defalcation	686
Meetings, etc	687

	Page
Railroad tickets	688
Recording, etc.....	688
Books, etc.....	688
Legal Expenses	690
Summaries of corrected Operating Expenses....	691
Fiscal year 1903-04.....	691
Fiscal year 1904-05.....	692
Fiscal year 1905-06.....	693
Correct net rate of income.....	695
Fiscal year 1903-04.....	696
Fiscal year 1904-05.....	697
Fiscal year 1905-06.....	698
Conclusion as to rate of income.....	699
 DEPRECIATION	 700
Reasons why cannot be allowed in this case	700
Constant replacement of plant from the maintenance fund has reduced depreciation to a minimum....	700
Mr. Schussler states that whatever is rebuilt is charged to Operating Expenses.....	702
Mr. Fitzgerald makes no allowance for depreci- ation, basing his conclusions on the testimony of assistant engineer of complainant.....	705
Mr. Schuyler	706
Mr. Adams	708
Mr. Dockweiler	709
In estimating value of complainant's properties no deduction has been made for depreciation.....	714
Depreciation is offset by excellence of system and in- crease of cost of material.....	718
Only a small part of complainant's plant is subject to depreciation	720
The amount of depreciation is not proved.....	721

HAZARD OF ENTERPRISE..... 724

Complainant admits that the only risks of business
are those forced upon it by the Constitution of
California 727

REASONABLE VALUE OF THE SERVICE..... 729

Mr. Adams' table not reliable because based on a
special class of customers..... 729

Proper basis of comparison is the average rate for
all classes of customers..... 730

Mr. Dockweiler's tables contain data for basis of
comparison under all conditions..... 731

Tables cover only such plants as are municipally
owned 731

"Theoretical Rate" 732

Comparison of actual receipts for consumer with
theoretical receipts 733

Theoretical rate is measure of the reasonable
value of the service..... 734

Purpose of Mr. Dockweiler's Exhibit No. 73..... 735

Method of determining the reasonable value of the
service for San Francisco..... 735

Information contained in Defendants' Exhibit No. 73 735

Physical Data 735

Financial Data 737

Exhibit No. 73 contained in Appendix No. 1..... 740

Résumé of Exhibit No. 73..... 740

Résumé of Exhibit No. 81..... 743

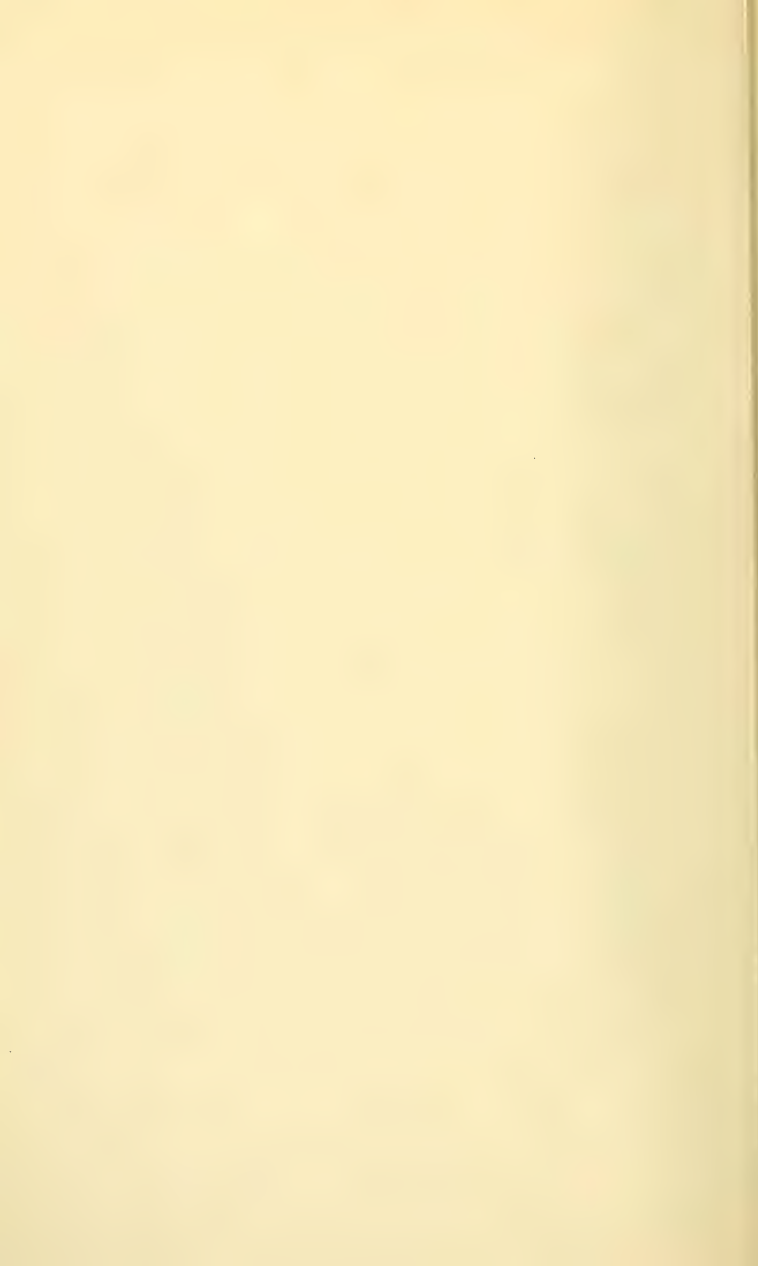
Résumé of Exhibit No. 82..... 744

Interesting facts shown on Exhibit No. 73..... 744

*Table No. 38. Comparison of rates paid on six-
room house (used by Mr. Adams) and by all
classes of consumers (used by Mr. Dockweiler)* 747

*Table No. 39. Comparison of rates paid by family
of five persons (used by Mr. Booker) and by
all classes of consumers.....* 750

	Page
DEFENDANTS' OBJECTIONS TO ADMISSIBILITY OF TESTIMONY AND MOTIONS TO STRIKE OUT	751
List of all objections filed as an addenda to this brief.	751
Mr. Schussler's testimony.....	752
Mr. Hering's testimony.....	759
Mr. Stearns' testimony.....	761
Mr. Adams' testimony.....	761
Mr. Schuyler's testimony.....	765
REPLY TO COMPLAINANT'S BRIEF.....	767
Alleged arbitrary action of Supervisors.....	767
No evidence thereof.....	767
Decrease of rates.....	769
Physical and other natural advantages belong to pub- lic and not to complainant.....	771
Skill and excellence of construction.....	772
Reduction of Insurance rate.....	773
Properties acquired for future use.....	774
Prices not hammered down by rate regulation.....	776
Increasing population	780
FINAL CHAPTER	781
Discrepancies in different estimates of value.....	782
Inquiries upon which decree in this case depends.....	782
Decree that rates are confiscatory must be based upon certainty and not on speculation.....	783
Evidence in this case fails to meet the requirements established by decisions of the Supreme Court... ..	785
Additional value cannot be allowed for properties acquired for future use.....	787
Nor for alleged intangible values.....	788
Evidence of value of tangible properties leaves the Court not only "in grave doubt" but in absolute uncertainty	788
Political considerations are immaterial.....	788
Failure of complainant to prove value of its proper- ties	789
Decree asked for by defendants.....	790



IN THE
Circuit Court of the United States
 NINTH CIRCUIT,
 NORTHERN DISTRICT OF CALIFORNIA

<p>THE SPRING VALLEY WATER WORKS (a corporation),</p>	vs.	<p>Complainant,</p>	No. 13,395 IN EQUITY
<p>THE CITY AND COUNTY OF SAN FRANCISCO (a municipal corporation), THE BOARD OF SUPERVISORS OF THE CITY AND COUNTY OF SAN FRANCISCO, and James P. Booth et al., members of and constituting said Board of Supervisors,</p>		<p>Defendants.</p>	

<p>THE SPRING VALLEY WATER COMPANY (a corporation),</p>	vs.	<p>Complainant,</p>	No. 13,598 IN EQUITY
<p>THE CITY AND COUNTY OF SAN FRANCISCO (a municipal corporation), THE BOARD OF SUPERVISORS OF THE CITY AND COUNTY OF SAN FRANCISCO, and James P. Booth et al., members of and constituting said Board of Supervisors,</p>		<p>Defendants.</p>	

<p>THE SPRING VALLEY WATER COMPANY (a corporation),</p>	vs.	<p>Complainant,</p>	No. 13,756 IN EQUITY
<p>THE CITY AND COUNTY OF SAN FRANCISCO (a municipal corporation), THE BOARD OF SUPERVISORS OF THE CITY AND COUNTY OF SAN FRANCISCO, and James P. Booth et al., members of and constituting said Board of Supervisors,</p>		<p>Defendants.</p>	

DEFENDANTS' BRIEF ON FINAL HEARING.

For Cases No. 13,395 (1903), No. 13,598 (1904), and
No. 13,756 (1905).

PRELIMINARY STATEMENT.

The purpose of these actions is to obtain writs of preliminary and final injunction against the enforcement of certain ordinances adopted by the Board of Supervisors of the City and County of San Francisco, establishing rates to be charged for water furnished that City and County and its inhabitants during the fiscal years 1903-4, 1904-5 and 1905-6. A preliminary injunction was issued in each case shortly after the filing of the bill of complaint and is now in force. The cases are now before the Court upon final hearing.

The position of the defendants is that complainant has not made a sufficient showing to warrant the continuance of the preliminary orders nor the issuance of final injunctions. The evidence produced upon the hearings of the preliminary motions was necessarily incomplete. The subsequent taking of testimony before the Master occupied more than a year, and a voluminous record is now presented to the Court for its consideration. Defendants seek to establish their position by an analysis of this record and the application of established principles of law thereto.

On pages five and six of complainant's opening brief request is made that the Court determine in these

actions certain important questions of law and fact in addition to the mere finding as to whether or not the rate prescribed by the ordinances involved herein will give a reasonable and fair compensation to complainant for its services. Those questions are:

First. What are the elements of value to be considered by the Board of Supervisors in estimating the value of the property used and useful in the production and purveyance of water to the citizens and municipality;

Second. What was that value in February, 1903, and

Third. What is the proper percentage of return on this valuation?

In the above requests the defendants most earnestly join.

A full six years will probably have elapsed from the filing of the bill of complaint in the first of these actions before the final determination thereof will be had.

It is stated by complainant that the presentation and argument of a proceeding of this character necessitates the expenditure of from \$75,000 to \$100,000. If the expenditures incurred on both sides of this litigation are all taken into account, it is probable that those figures would not fully cover the entire amount. This delay and expense has been increased in this litigation owing to unusual circumstances. The fire of 1906 destroyed all the evidence which had there-

tofore been taken, with the exception of a single copy fortunately preserved by the care and foresight of Mr. Dockweiler. This necessitated re-establishing the record at considerable expense and long delay. The unfortunate and untimely death of Mr. M. B. Kellogg, the attorney who had so ably represented the complainant for decades before his decease, and changes in the office of City Attorney have compelled the preparation of briefs on both sides of the litigation by counsel who did not participate in the taking of the testimony and were, therefore, unfamiliar therewith. The necessity of the new attorneys familiarizing themselves with the seven thousand pages of testimony and numerous exhibits in this case has added to the delay. But disregarding such unusual features, which might not occur again, the fact remains that the determination of the question of value of complicated and scattered properties upon which the estimates vary from \$24,000,000 to \$70,000,000 is an undertaking which, under the most favorable circumstances, will occupy the attention of Court and counsel for years. It is also probable that as long as uncertainty prevails and differences of opinion exist as to the elements which should be considered by the Board of Supervisors in fixing the value of complainant's properties, litigation will be repeated each successive year.

For the above reasons defendants are fully as anxious as complainant that the decision in these cases establish some definite principles and values, which may assist in arresting continuous litigation between the

parties to these actions and the establishment of harmonious relations between them.

LEGAL PRINCIPLES INVOLVED.

Following the plan adopted by complainant in its brief, we shall attempt to separate the discussion of the legal principles involved in these cases from the consideration of the evidence and to place the discussion of the law first.

In that discussion we have attempted to confine ourselves mainly to the consideration of those points and principles upon which differences of opinion exist between opposing counsel. Some general principles are stated, concerning which there can be no difference of opinion, but the attempt has been to avoid discussion of such principles and simply state them as a basis of the argument which is made upon the controverted points. Such legal principles are considered under the following headings:

- A. Regulation of a Public Service Company is a Legislative Function.
 Source or Nature of this Legislative Power.
- B. The Court has Power of Review.
 The Court Cannot Fix Rates.
- C. Reasonableness of Rates Involves Three General Considerations:
 First—A Reasonable Valuation of the Plant;
 Second—A Fair Rate of Income;
 Third—The Reasonable Value of the Service.

I. The Fair Valuation of the Plant.

- (a) Fair Value Implies Present Value.
- (b) The Rules for Valuation in Eminent Domain do not Apply.
- (c) Present Value of a Public Service Company Consists of Two Elements—A Public and a Private Estate.
- (d) Did the Board of Supervisors Fail to Consider Necessary Elements of Value as Alleged?
 - 1. Element of Value as a Going Concern.
 - 2. Element of Franchise.
 - 3. Element of Value Because of the Ability of the Water System to Expand for Future Use and of the Property now Held for Use in Immediate Future.
 - 4. Element of Value Due to Absence of Competition.
 - 5. Element of Value Due to the Physical Conditions Attending the Purveying of Water in San Francisco.
 - 6. Elements of Value Due to Comparative Excellence of Works Because of Skill and Foresight in Construction and Perfecting of System.
- (e) The Determination of Present Value.
 - 1. Stock and Bond Issue.
 - 2. Substitutional Cost.
 - 3. Actual Investment.
 - 4. Recent Purchase Price.

5. The Burden is on the Company at Every Stage of the Proceeding to Show the Rates Unreasonable.

Cases in which Proof has been Held Insufficient.

Proof Necessary on Final Hearing.

II. The Rate of Income.

- (a) In General.
- (b) Contentions of Complainants.
 1. Depreciation as Part of the Return.
 2. Hazards of the Enterprise.
- (c) The Ultimate Result.

III. The Reasonable Value of the Service.

Comparative Systems and Rates.

A. REGULATION OF A PUBLIC SERVICE CORPORATION IS A LEGISLATIVE FUNCTION.

Lake Shore R. R. Co. vs. Smith, 173 U. S., 684;

People vs. Budd, 117 N. Y., 1;

Budd vs. N. Y., 143 U. S., 517;

Int. C. C. vs. Cinn. R. R., 167 U. S., 499, 17 Sup. Ct., 896, 42 L. Ed., 243;

Reagan vs. Farmers' Loan & Trust Co., 154 U. S., 397, 14 Sup. Ct., 1047, Law Ed., 1014.

Prentis vs. Atlantic Coast Line Co., 29 Sup. Ct. Rep., 69.

In *Interstate Commerce Commission vs. Railway Co.* (*supra*), it is said:

“It is one thing to inquire whether the rates which have been charged and collected are reasonable—that is a judicial act; but an entirely different thing to prescribe rates which shall be charged in the future—that is a legislative act. *Chicago, Milwaukee Railway vs. Minnesota*, 134 U. S., 418, 458; *Reagan vs. Farmers’ Loan & Trust Co.*, 154 U. S., 362, 397; *St. Louis & San Francisco Railway Co. vs. Gill*, 156 U. S., 649, 663; *Cincinnati, New Orleans Railway vs. Interstate Commerce Commission*, 162 U. S., 184, 196; *Texas & Pacific R. R. vs. Interstate Commerce Commission*, 162 U. S., 197, 216; *Munn vs. Illinois*, 94 U. S., 113, 144; *Peik vs. Chicago & Northwestern R. R.*, 94 U. S., 164, 178; *Express Cases*, 117 U. S., 29.”

In *Reagan vs. Farmers’ Loan and Trust Co.*, *supra*, the same Justice enlarged upon the relative powers of the Legislature and courts in the regulation of rates:

“It is doubtless true, as a general proposition, that the formation of a tariff of charges for the transportation by a common carrier of persons or property is a legislative or administrative rather than a judicial function. Yet it has always been recognized that, if a carrier attempted to charge a shipper an unreasonable sum, the courts had jurisdiction to inquire into that matter and to award to the shipper any amount exacted from him in excess of a reasonable rate; and also in a reverse case to render judgment in favor of the carrier for the amount found to be a reasonable charge. The province of the courts is not changed, nor the limit of judicial inquiry altered, because the Legislature, instead of the carrier, prescribes the rates. The courts are not authorized to revise or change the body of rates imposed by a Legislature or a commission; they do not determine whether one rate is preferable to another or what under all circumstances would be fair and reasonable as between the carriers and the shippers; they do not engage in any mere administrative

work; but still there can be no doubt of their power and duty to inquire whether a body of rates prescribed by a Legislature or a commission is just and reasonable, and such as to work a 'practical destruction to rights of property, and if found so to be, to restrain its operation'."

In *Prentis vs. Atlantic Coast Line Company*, 29 Sup. Ct. Rep., 69 (Nov. 30, 1908), Justice Holmes says:

"A judicial inquiry investigates, declares and enforces liabilities as they stand on present or past facts and under laws supposed already to exist. That is its purpose and end. Legislation, on the other hand, looks to the future and changes existing conditions by making a new rule to be applied thereafter to all or some part of those subject to its power. The establishment of a rate is the making of a rule for the future, and therefore is an act legislative, not judicial, in kind, as seems to be fully recognized by the Supreme Court of Appeals. . . ."

SOURCE OR NATURE OF THIS LEGISLATIVE POWER.

A secondary question arises under this general heading as to the source or nature of this legislative power. In many cases loose statements are made, placing all regulation under the police power. This is not to be wondered at, in that the courts frequently have sought to include within the police power all legislative powers not otherwise accounted for. This loose application of the term "police power" is largely the result of its use in covering two fields of law entirely different in their scope. In *Braum et al. vs. City of Chicago*, 110 Ill., 195, Judge Walker says:

"The term 'police power of the State,' is used in different senses. In its broadest and most unlimited sense, it embraces all laws or regulations for the well-being or government of the people. In its most limited sense, it is used to express the power of preservation of the health or safety of the people by depriving persons of liberty, or to destroy private property, in despite of constitutional limitations, in great and pressing emergencies, to prevent the spread of contagious diseases, or other great calamities to the people or their property."

The cases which are brought under the term as it is used in its broad sense may be divided into three distinct classes. First, Eminent Domain; second, the protection of the health, morals and safety of the individual; and third, the regulation of such utilities as are peculiarly affected with a public interest.

Waters-Pierce Oil Co. vs. State, 44 S. W., 936,
19 Tex. Civ. App., 1;
City of Geneva vs. Geneva Telephone Co., 62
N. Y. Supp., 172, 175;
Karasck vs. Pier, 61 Pac., 33, 35, 22 Wash., 419;
Comm. vs. Alger, 61 Mass., 53, 84;
State vs. Griffin, 39 Atl., 260, 69 N. H., 1;
Huber vs. Merkel, 94 N. W., 354, 358, 117 Wis.,
355.

In its strict sense, the term is limited to that field of law which has to do particularly with the protection of health, morals and safety of the individual for the general welfare.

Lawton vs. Steele, 14 Sup. Ct., 499, 500, 152
U. S., 133;

- Pearsall vs. Gt. Northern R. R. Co.*, 16 Sup. Ct., 705, 710, 161 U. S., 646;
Minneapolis & St. L. R. R. Co. vs. Beckwith, 9 Sup. Ct., 207, 209, 129 U. S., 29;
Crowley vs. Cristensen, 11 Sup. Ct., 13, 137 U. S., 89;
Western Union Tel. Co. vs. Pendleton, 122 U. S., 347, 359, 7 Sup. Ct., 1126;
Mugler vs. Kansas, 8 Sup. Ct., 273, 298, 123 U. S., 623;
Leisy vs. Hardin, 10 Sup. Ct., 681, 692, 135 U. S., 100;
Arkansas vs. Kansas Coal Co., 96 Fed., 353, 361;
Holden vs. Hardy, 169 U. S., 366;
Jacobson vs. Mass., 197 U. S., 11;
People vs. Van De Carr, 199 U. S., 552;
Gardner vs. Michigan, 199 U. S., 395;
N. Y. & N. E. R. R. vs. Bristol, 151 U. S., 556, 571;
C. B. & Q. R. R. vs. Chicago, 166 U. S., 226, 255;
Douglas vs. Kentucky, 168 U. S., 488;
Otis vs. Parker, 187 U. S., 606.

Whether we apply the term "police power," to the "power for the public good," and thus include under it the three branches of law indicated above or whether we apply the term in its strict sense, principles of law must not be confused by uncertainty of terms. Regulation of public utilities, the power of eminent domain and police power (as applied in its strict sense) as to

each other require the application of different and distinct principles of law. Under eminent domain the individual is deprived of his property absolutely, for all purposes, and adequate compensation for the property as considered in its most valuable light must be allowed. Under the police power (in its strict sense) the individual may, in cases of exceeding necessity, be deprived of his property without any compensation whatever. Where health, safety, or morals are imminently menaced, property may be taken or destroyed without any compensation.

State vs. Jacksonville Terminal Co., 27 South, 225, at 237, 41 Fla., 363;
Village of Carthage vs. Frederick, 25 N. E., 480, 481, 122 N. Y., 268.

On the other hand the reasonable regulation of a public service company is never a "taking" of private property. It is but the regulation of the public estate; the control of that which has been dedicated to a public use. To such companies the public has entrusted certain sovereign rights. They possess special franchises and exercise the power of eminent domain. They are performing a public function. In consideration of these premises the public asserts the right to regulate. It is only when such power of regulation is exercised unreasonably that there is a "taking" of private property.

The public interest in property dedicated to a public use was announced more than two hundred years ago and is part of the fundamental common law.

See quotations from Lord Chief Justice Hale and Lord Ellenborough in *Munn vs. Illinois*, 94 U. S., 113, at pp. 126 to 129.

B. THE COURT HAS POWER OF REVIEW.

A judicial question arises when it is contended that the enforcement of a legislative regulation will deprive the public service company of its estate without due process of law or adequate compensation. The constitutional questions thus raised revolve around the question of reasonableness. Rates that deprive the owner of property without due process of law or adequate compensation are said to be unreasonable. Reasonableness then is the vital question to be determined by the judicial review.

Spring Valley Water Co. vs. San Francisco,
165 Fed., 676.

Palatka Waterworks vs. Palatka, 127 Fed., 165;
Chicago, M. & St. Paul R. R. vs. Tompkins,
90 Fed., 365;

Brymer vs. Butler Co., 179 Penn. St., 249;

Steenerssen vs. Gt. Northern R. R. Co., 69 Minn.,
389;

Smyth vs. Ames, 169 U. S., 527.

THE COURT CANNOT FIX NEW RATES. IT SIMPLY DETERMINES WHETHER OR NOT A RATE IS CONFISCATORY.

Consolidated Gas Co. vs. City of New York, 157
Fed., 882;

Chicago, M. & St. Paul R. R. Co., 90 Fed.,
365;
Brymer vs. Butler Water Co., 179 Penn. St.,
249.

C. REASONABLENESS OF RATES INVOLVES THREE GENERAL QUESTIONS.

FIRST, WHAT IS THE FAIR VALUE OF THE PLANT
NECESSARILY EMPLOYED IN SERVING THE PUBLIC?

SECOND, WHAT IS A FAIR RATE OF INCOME UPON THIS
VALUATION?

THIRD, WHAT IS THE REASONABLE VALUE OF THE
SERVICE?

Spring Valley Water Co. vs. San Francisco,
165 Fed., 667.

Consolidated Gas Co. vs. City of New York, 157
Fed., 849;

San Diego Land Co. vs. National City, 174 U.
S., 759;

Steenerssen vs. Great Northern, 69 Minn., 389,
411;

Smyth vs. Ames, 169 U. S., 546;

Stanislaus County vs. San Joaquin, 192 U. S.,
201;

San Diego Land Co. vs. Jasper, 110 Fed., 714;

Cotting vs. Kansas City Stock Yards, 82 Fed.,
854;

Kennebec Water Dist. vs. Waterville, 99 Me.,
382;

- San Diego Land Co. vs. National City*, 74 Fed.,
83;
Central of Georgia R. R. Co. vs. R. R. Com.,
161 Fed., 996 and 999;
Covington Turnpike Co. vs. Sanford, 164 U. S.,
596 and 597;
Milwaukee R. R. Co. vs. Light Co., 87 Fed.,
579;
Brymer vs. Butler Water Co., 179 Penn. St.,
251;
San Diego Land Co. vs. Jasper, 189 U. S., 444;
Consolidated Gas Co. vs. Mayer, 146 Fed., 157.

I. WHAT IS A FAIR VALUATION OF THE PLANT?

The difficulty in ascertaining the value of a plant has given rise to much confusion as to what value actually implies. This confusion is due largely to a failure to distinguish between different terms and processes. Evidence of value is confused with elements of value. Certain weight, color, chemical characteristics and glittering effects are evidences of a gold dollar. From these characteristics we arrive at the conclusion of a gold dollar. But it certainly would be an abuse of logic to say that this article with these characteristics is worth a gold dollar in trade plus a certain amount for it as a "heavy" dollar, so much as a "glittering" dollar, and so much on account of auriferous chemical characteristics. The fact is, it is only a gold dollar. These characteristics are but evidences of its being a gold dollar; without them it would be a counterfeit.

Again, difficulties of construction have been con-

fused with evidence of value. A plant is not any more valuable because a dam has been washed out and another of similar description placed in its stead. A trench dug with silver spoons is not any more valuable than one dug with a steam shovel. Neither is a plant any more valuable because of the "physical conditions attending the purveying of water in San Francisco," except to the extent that those conditions require a different plant.

A further source of confusion has been the tendency to confound evidence of value with value itself. In many cases so much importance has been placed upon "original cost," and "bond and stock value," that other courts have tended to repudiate their consideration entirely, claiming, and rightly, that they are not true bases of value. They should be considered, but considered as evidence, and not as final bases of value.

(a) FAIR VALUATION IMPLIES PRESENT VALUE.

Spring Valley Water Co. vs. City of San Francisco, 165 Fed., 667.

Consolidated Gas Co. vs. City of N. Y., 157 Fed., 849;

San Diego Land Co. vs. National City, 174 U. S., 759;

Steenerson vs. Gt. Northern R. R., 69 Minn., 411;

Smyth vs. Ames, 169 U. S., 546;

Stanislaus County vs. San Joaquin, 192 U. S., 201;

San Diego Land Co. vs. Jasper, 110 Fed., 714;
Cotting vs. Kansas City Stock Yards, 82 Fed.,
 854;
San Diego Land Co. vs. National City, 74 Fed.,
 at 83;
Kennebec Water Dist. vs. Waterville, 99 Me.,
 382.

Judge Farrington states the law on page 680 of 165 Fed., in the Spring Valley case above cited, as follows:

"He is entitled to a fair return, not always upon the cost of the property, because it may have cost too much; not always upon the outstanding indebtedness, because it may be in excess of the real value of the property; not always upon the total amount invested, because some portion of that which is acquired by the investment may be neither necessary nor presently useful for the public service; but upon the fair present value of that which is used for the public benefit, having due regard always to the reasonable value of the service rendered.

"Each case must depend very largely upon its own special facts, and every element and every circumstance which increases or depreciates the value of the property or the service rendered should be given due consideration, and allowed that weight to which it is entitled. It is, after all, very much a question of sound and well instructed judgment."

In *Consolidated Gas Co. vs. City of New York*, on page 854 of 157 Fed., Judge Hough states the law and comments on the cases as follows:

"It appears by undisputed evidence that some of these last items of property cost more than new articles or the same kind would have cost at the time of inquiry; that some are of designs not now favored by the scientific and manufacturing world, so that no one now entering upon a similar busi-

ness would consider it wise to erect such machines or obtain such apparatus. In every instance, however, the value assigned in the report is what it would cost presently *to reproduce* each item of property, in its present condition and capable of giving service neither better nor worse than it now does.

"As to all the items enumerated therefore—from real estate to meters inclusive—the complainant demands a fair return upon the *reproductive value thereof*, which is the same thing as the present value properly considered. To vary the statement, complainant's arrangements for manufacturing and distributing gas are reported to be worth the amounts above tabulated if disposed (in commercial parlance) 'as they are.' Upon authority I consider this method of valuation correct. What the Court should ascertain is the fair 'value of the property being used'; *Smyth vs. Ames*, 169 U. S., 546; the present as compared with the 'original' cost and what 'complainant employs for the public convenience,' and it is also the 'value of the property at the time it is being used.' *San Diego Land Co. vs. National City*, 174 U. S., 757. And see also *Stanislaus County vs. San Joaquin County*, 192 U. S., 201. It is impossible to observe this continual use of the present tense in these decisions of the highest court without feeling that the *actual* or *reproductive* value at the time of inquiry is the first and most important figure to be ascertained; and these views are amplified in *San Diego Land Co. vs. Jasper*, 110 Fed., 714, and *Cotting vs. Kansas City Stock Yards*, 82 Fed., 854, where the subject is more fully discussed. Upon reason it seems clear that in solving this equation the plus and minus quantities should be equally considered, and appreciation and depreciation treated alike."

On the appeal of this case the position taken by Judge Hough was affirmed by the Supreme Court in its decision of Jan. 4, 1909, when the Court said: "There must be a fair return upon the reasonable "value of the property at the time it is being used for "the public."

(b) THE RULES FOR VALUATION IN EMINENT DOMAIN
DO NOT APPLY IN VALUATION FOR REGULATION OF
RATES.

As stated above, the law of Eminent Domain and the law of Regulation of Public Service Corporations, as to each other, cover separate and distinct fields of law. They may arise from the same source, the "Public Good," but this, in a sense, is true of all law. In their historical development as well as on principle they cover distinct branches of law and are governed by different principles.

Even the decisions on the law of Eminent Domain manifest much confusion as to making proper allowance for franchise, good-will and consequential damages, which fact but emphasizes the further fact that the confounding of the two lines of cases will but tend to add confusion to confusion.

In the first place, Eminent Domain deals with all kinds of property; and is generally applied to the taking of private property for a public use.

"The right to take private property for public use without the consent of the owner is called 'eminent domain'."

Consumers' Gas Trust Co. vs. Harless, 131 Ind., 446, 450, 29 N. E., 1062, 15 L. R. A., 505.

"Eminent Domain is the right of a government to take and appropriate private property to public use whenever the exigency requires it."

Commonwealth vs. Alger, 61 Mass., 53, 85.

See also:

City of Madison vs. Daley, 58 Fed., 751, 753;
Newbury Water Co. vs. City of Newbury, 103
 Fed., 585, 587;
Groff vs. Bird in Hand Turnpike Co., 128 Pa.,
 621, 5 L. R. A., 661;
Hale vs. Lawrence, 21 N. J. L., 714, 728, 47 Am.
 Dec., 190.

Under eminent domain, the property is appropriated, taken and dedicated by the public. The individual is deprived of his property absolutely and for all purposes and therefore he should receive compensation for his property as considered in its most favorable light. As was said in the case of *Boom Company vs. Patterson*, 98 U. S., 403, which was a condemnation proceeding, if the property was worth a certain amount as a residence lot and a certain amount more for boom purposes, the latter must be given due consideration.

On the other hand, rate regulation can never be applied to a private enterprise. It is a power peculiar to such concerns as are affected, by their very nature, with a public interest.

Different questions are involved in the valuation of public property, as that term is applied to a public service corporation, from those which arise in the valuation of purely private property. Judge Savage says in *Kennebec Water Dist. vs. Waterville*, 97 Me., 200:

"If the Maine Water Company were doing a private business, knowing its present net income, and the facts tending to show a probable increase in the future or otherwise, it

would be comparatively easy to approximate the present value of its plant and franchises. But it is not doing a private business. It is not a private corporation. The value of its property cannot be appraised as if it were a private corporation, doing a private business."

As is held in the case of *State vs. Jacksonville Terminal Company*, 27 South Rep., at p. 237, 41 Fla., 377:

"It is no more an appropriation of the property of the terminal company, than is the law which requires common carriers to transport all persons at a reasonable rate of compensation, or the law which requires an innkeeper to furnish accommodations to all who apply, and at reasonable rates, if fixed by the Legislature. . . . There is a very clear distinction between a taking and an appropriation of property for a public use, and regulating the use of property to a use in which the public has an interest. The latter is an exercise of the 'police power,' as it is called; the former, of the power of eminent domain. The State in the former case compels the dedication of the property, or some interest therein, to a public use, or, if already dedicated to one public use, then to another. In the latter the owner has voluntarily, or in pursuance of the provisions of its charter, dedicated the property to a use in which the public has an interest, and the use of that property so dedicated is merely regulated and controlled for the public welfare. In this case the regulation complained of does not compel the defendant in error to dedicate its property to the public use, or to a different public use. It has already voluntarily, and presumably in pursuance of its charter powers, devoted its property to a public use. . . . The State regulates this use of the property by requiring that the charges for such use and privileges shall be reasonable. . . . The regulation complained of does not appropriate property. It merely prevents abuses, prohibits discrimination and excessive charges, and is therefore valid."

Again, in eminent domain the private property of the individual is taken without his consent. In the

case of a public service company, on the other hand, the individual voluntarily dedicates his property to a particular service in which the public has an interest; *and therefore it is specifically a question of the value of that property as dedicated to this particular service.* The individual need not so dedicate his property. If, however, he chooses to do so, it becomes subject to the public interest and control. As was said in *Munn vs. Illinois*: "He may withdraw his grant by discontinuing the use, but so long as he maintains the use, he must submit to the (public) control." 94 U. S., 113, cited and quoted by Judge Farrington in the late Spring Valley case (165 Fed., 676).

Regulation then has to do with the value of that property as dedicated to that particular service. As Judge Farrington says on p. 698 of 165 Fed.: "If the company sees fit to use for the mere catchment of water, lands which are much more valuable for other purposes, it is unreasonable in fixing rates to appraise such lands for more than they are worth as watershed areas" (citing) *Capital City Gaslight Co. vs. Des Moines*, 72 Fed., 829; *Boise City I. & L. Co. vs. Clark*, 131 Fed., 415; *Cons. Gas Co. vs. New York*, 157 Fed., 849, 854; *Beale & Wyman on R. R. Reg.*, Secs. 343, 344, 462.

In eminent domain, on the other hand, the individual is deprived of his private property in every respect. It is placed entirely beyond his control, and therefore he is entitled to compensation for his property as considered in its most favorable light.

Again in rate regulation, there is no "taking" of private property, as long as a fair income is allowed. The property of a public service corporation which is protected by the constitutional guaranty is not the corpus of its plant, which has been voluntarily dedicated to a public use, but it is the right to a fair and reasonable compensation for the use of that plant. The right to such income is property within the meaning of the constitution. But no private rights are invaded until such income is reduced to a point below what is fair and reasonable.

(c) PRESENT VALUE OF A PUBLIC SERVICE CORPORATION
CONSISTS OF TWO ELEMENTS—A PRIVATE ESTATE, AND
A PUBLIC ESTATE.

The very foundation of this public estate in a public service company is its natural tendency toward monopoly in a service upon which every individual of a community is dependent.

Beale & Wyman R. R. Reg., Sec. 66.

This monopoly has arisen by reason of the demands and interests of the whole people and not by virtue of the efforts of any particular individual, and to the people is due the benefit. This is the people's interest in the concern. This public interest is one in fact. It is a right which the public can exercise to the exclusion of all others. The public decrees that the right and control of supplying water to a highly congested populace is so sacred that it will not be given to any private individual. The individual may be permitted

to exercise the right, but not to own it. The public can, at any time, purchase materials and construct its own plant, or it can say to the individual or corporation, "You purchase the materials and construct the plant"; but whichever it does, the plant never ceases to be dedicated to a public service. The public owns its own estate. This estate is too sacred ever to be an object of gift or barter to the individual. No public agent can dispose of the sovereign powers. The public may permit the individual to exercise its right; the right and the control, however, always belong to the public.

In case the public sees fit to permit the private individual to purchase materials, lands, and whatever may be necessary to the construction of a plant, and the individual sees fit to so dedicate his materials, labors and skill; then it is we have a private estate dedicated to a public purpose and united with the public estate. And even though this private estate is dedicated to a public use, and is subject to public control, the individual can not be deprived of this, his private estate, without due process of law or adequate compensation. If this private estate depreciate or if it enhance in value while owned by the individual, that is his due; if, however, the monopolistic element appreciate or depreciate by virtue of the public, that is as truly its due. It is this monopolistic tendency of a service in which all are interested which gives rise to the public interest, and the stronger the tendency in that direction, the greater the interest of the public.

This public estate is a valuable complement to the investment of the individual; without it the property

of the individual would be practically valueless. With it, he is able to produce a valuable income on his investment. The fact, however, that the public grants him the privilege, the necessary complement to his investment, should not justify him in demanding income upon both complements, upon the public estate as well as upon the value of his own investment.

The authorities uniformly hold that the public has a special interest in all such concerns as are denominated public service companies. The public withholds or grants certain privileges which are vital to the operation of the company, and out of these privileges arises the public interest.

When Judge Savage holds that the value of the property of a public service company "can not be appraised as if it were a private corporation, doing a "private business," he in effect holds that the public has an actual interest in the concern. *Kennebec Water Dist. vs. Waterville*, 97 Me., 200 and 201.

It can not be otherwise under Art. XIV of the California Constitution, which provides:

"The use of all water now appropriated for sale, rental or distribution is hereby declared to be a public use, and subject to the regulation and control of the State, in the manner to be prescribed by law."

To the same effect are the cases of

Stanislaus County vs. San Joaquin & Kings R. Canal Co., 192 U. S., 201;

Western Union Tel. Co. vs. Call Pub. Co., 181 U. S., 100;

Cotting vs. Kansas City Stock Yards, 183 U. S.,
93;

Dow vs. Beidleman, 125 U. S., 687;

San Diego Land Co. vs. National City, 74 Fed.,
79;

Williams vs. Mutual Gas Co., 52 Mich., 501;

Smyth vs. Ames, 169 U. S., at 554.

In *Western Union Telegraph Co. vs. Call Publishing Company* (*supra*), the Court says:

“Common carriers, whether engaged in interstate commerce or in that wholly within the State, are performing a public service. They are endowed by the State with some of its sovereign powers, such as the right of eminent domain, and so endowed by reason of the public service they render.”

In *Smyth vs. Ames* (*supra*), it is said:

“Such a corporation was created for public purposes. It performs a function of the State. Its authority to exercise the right of eminent domain and to charge tolls was given primarily for the benefit of the public.”

And in *Williams vs. Mutual Gas Co.* (*supra*), we find the following language:

“The defendant is a corporation in the enjoyment of certain rights and privileges, under the statutes of the State and charter and by-laws of the city, and derived therefrom. These rights and privileges were granted that corresponding duties and benefits might inure to the citizens when the rights and privileges conferred should be exercised.”

In the pioneer California case on rate regulation (*San Diego Water Company vs. San Diego*, 118 Cal., 556, at p. 567), it is said:

"It is apparent that the water company does not own the water which it collects and supplies, or the plant which it uses to collect and distribute that water, in the same sense in which a man is said to own his house or his farm. By the very nature of the use to which it is applied, the company has devoted that property to a public use. . . . But this is not an ordinary business enterprise. Those who engage in it put their property entirely into the hands of the public."

The basis of value adopted in this case has not been followed in subsequent decisions of the Federal Supreme Court, but the forceful soundness and accuracy of the above statements have never been questioned.

(d) DID THE BOARD OF SUPERVISORS FAIL TO CONSIDER
NECESSARY ELEMENTS OF VALUE AS ALLEGED?

At this point we consider more specifically certain alleged elements of value which complainant argues should have been considered by the Board of Supervisors.

1. ELEMENT OF VALUE AS A "GOING CONCERN."

This term, "Going Concern," is so vague in its meaning that it presents a difficult subject for discussion. If we mean a going concern as distinguished from a dead concern, then we grant it should be considered: for indeed a dead concern would be worthless. The piping would be worse than scrap iron, for it is buried and difficult of access to the iron vender. If it means a concern that furnishes water as contrasted with one that does not, then, too, it should be considered; for a concern that furnishes no water certainly merits no water rate whatever. If it means a united whole as distin-

guished from its segregated parts, then again it should not be disregarded, for it requires labor, skill and administrative ability to bring the segregated parts together and render them useful. An isolated faucet would do the public no service; it is placing it in the proper relation to other parts that makes it useful. This adjustment is administration and labor in constructing the plant. Without them there would be no plant, no going concern, no system. The principal objection to considering this human element—this labor—as included in the category of “going concern,” is the opportunity which is afforded and grasped, in many arguments and some decisions, of allowing a double valuation for the same elements. It is manifest that these items can not be allowed for as labor or administrative expense in the cost of construction or reduplication of a plant, and then allowed a second time as part of a “Going Concern.”

If it mean patronage or good-will, once more we grant, it should not be disregarded. If, however, it is sought to be considered in the light of good-will as this term is used in ordinary competitive business an injustice at once becomes apparent. There is no such thing as good-will in the business of furnishing a city water service. The company is bound by law to serve the individual, and the individual is compelled to accept the water from the company by force of circumstances.

The relative position of the public to the sources and means of service compels monopoly. It is not a question of certain companies, by virtue of excellence of service, getting the bulk of the trade as compared with

their competitors. It is simply a question of choice by the public as a whole as to what individual or corporation they shall entrust with the privilege of furnishing the water of the city, until the city shall itself elect to furnish its own water.

Let us now examine the authorities which complainant has cited as supporting a special value in the item "Going Concern." At the outset it must be admitted that statements can be found in the numerous cases on rate regulation to support practically any theory of value. We are endeavoring in this portion of our brief to state general principles which find their support in the fundamentals of law and reason, and thus to avoid any participation in what might be considered a mere contest in the number of decisions cited.

The first quotation which complainant has set forth on page 22 of its brief is from *Long Branch Commission vs. Tinturu Water Company*, 62 Atl., 474. The quotation is accurately "picked out." But let us investigate as to what the Court actually does, after making these general statements as quoted by complainant. On page 481, of the same report, the Court makes a computation of the actual values. The actual costs of purchase and construction are combined and then \$230,000 for certain bad purchases and overcosts is deducted. The Court does not make any extra allowance for a special value in "Going Concern." The complainant's quotation, coupled with the actual decision, is authority only for the correct principle that "Going Concern" should be considered in showing that the cost of construction has not been in vain; that the

plant is not valueless; and in that sense the Board of Supervisors certainly have given it due consideration, but the decision is not authority for the erroneous doctrine that "Going Concern" has some mysterious value by and of itself.

The next quotation is taken from *Spring Valley vs. San Francisco*, 124 Fed., 574, at page 595. As the first line of the quotation indicates, this is nothing more than a statement of the complainant's contention in that case. That contention was based on another quotation in a condemnation proceeding, as to which the Court says the principles "appear" to be applicable to the present case. But does the Court actually adopt the complainant's contention? Follow the Court a little further into the next paragraph:

"The principles of just compensation established by the courts in the several cases they have had under consideration are of great assistance in solving many of the difficult questions involved in this character of litigation; but the application of these principles to the facts of a particular case is, after all, the simple rule of determining what, under all the circumstances, is reasonable and just as between the rate-payers and the corporation engaged in performing the public service."

We fail to see where the Court makes any allowance for a special value in going concern.

The next case from which Complainant has quoted is *Gloucester Water Supply Co. vs. City of Gloucester*, 60 N. E., 977, at page 981.

This case is a condemnation proceeding in a State court and not a rate regulation case, which disposes of it as an authority in the case at bar. But even as a con-

demnation proceeding, it is difficult to state what the case actually is authority for on the rules of valuation. Just following the part of the opinion which complainant has quoted, the Court goes on to say:

"The provisions of the act are that the 'fair value' shall be estimated without enhancement on account of future earning capacity or future good will, or on account of the franchise of said company. Whether that would allow present earning capacity and present good will, apart from the franchise, to be taken into account, as distinguished from future earning capacity and future good will, need not be considered. It is plain that the element of value which comes from the fact that the property is sold as a going concern, in which case it has, or may have, in fact, a greater market value than the same property reproduced in its physical features, is not excluded from consideration by that provision of the statute."

The Complainant has chosen its next extract from *Brunswick Water Dist. vs. Maine Water Co.*, 59 Atl., 537, at page 539, 99 Me., 381.

This again is a condemnation proceeding and not a rate regulation case. But here once more we call attention to the latter part of the quotation where Judge Savage corrects the erroneous doctrine of special value in going concern. He says:

"We speak sometimes of a going concern value as if it is or could be separate and distinct from structure value—so much for structure and so much for going concern. But this is not an accurate statement. The going concern part of it has no existence except as a characteristic of the structure. If no structures, no going concern. If a structure in use, it is a structure whose value is affected by the fact that it is in use. There is only one value. It is the value of the structure as being used. That is all there is to it."

It should be noticed that the above comments were made by Judge Savage with reference to erroneous doctrines which were deduced from his former opinion in *Kennebec Water Dist. vs. Waterville*, 54 Atl., 6, at page 11, 97 Me., 209. It might also be noticed that the complainant has gotten the "last first, and the first last." The three or four extracts from the *Kennebec Water Dist.* case, quoted on pages 24 and 25 of complainant's brief, are taken from the opinion in a condemnation proceeding decided two years before the decision from which the extract was taken quoted on the previous page of complainant's brief, and as above indicated, the comments above quoted from the *Brunswick Water Dist.* opinion were made with reference to the erroneous doctrine of a separate value in going concern which seemed to have been gotten from the very extracts which complainant has quoted on pages 24 and 25 of its brief.

The two remaining quotations on pages 25 to 28, inclusive, the first from 62 Fed., 864, and the other from 87 Pac., 735, are from condemnation proceedings and even as such neither case places a separate and distinct value upon going concern.

We submit that the rules for valuation in condemnation proceedings do not apply in rate regulation cases; historically and on principle the fields of law are different. Practically all the statements quoted by complainant are from condemnation proceedings, and they have not shown a single instance in the late, important cases where a special value has been placed upon going concern.

The case of *Cedar Rapids Water Co. vs. Cedar Rapids*, 118 Ia., 262, 91 N. W., 1081, is valuable in this connection as well as in connection with valuation in eminent domain proceedings and for rate fixing. On page 262, Judge Weaver uses the following language:

"It is proper here to say that in reaching these conclusions we have not attempted any estimate of the 'going concern' of the water works as a distinct and severable item in the calculation. By 'going value' we understand is meant that value which arises from having an established going business. While not the exact equivalent of good will as applied to ordinary business, it is of somewhat similar nature, and attaches to the business, rather than to the property employed in such business. The fact that the business is established is, of course a material fact in ascertaining the value of the plant, and especially is this true where the property is being estimated for the purpose of sale or condemnation; but as a basis for estimating profits its significance is less apparent. The merchant who sells an established business may properly place a high value on the good will which he relinquishes to the buyer, but so long as he continues in the enjoyment of the business he has created he does not add the value of the good will to his capital stock in estimating the percentage of his annual profits."

The complainant has cited the late and important case of *Consolidated Gas Co. vs. City of New York*, but failed to quote the holding on this point. We quote in full the portion of the opinion which the Court devotes to this mysterious species of value: (157 Fed., 871-872.)

"By the definition of this species of property adopted in *Washburn vs. National Wall Paper Co.*, 81 Fed., at page 20, 26 C. C. A., at 315, good will is 'all that good disposition which customers entertain towards a house of business identified by the particular name or firm, and which may induce

them to continue giving their custom to it.' I can not perceive how this complainant can possess a good will answering that description. There is nothing in the nature of its business enabling it to acquire good will in the property sense, or indeed in any other. It is required by law to furnish gas to all demanding it within a certain distance of the mains, service pipes, and meters. What induces a customer to remain with this company, its successor, or vendee? Nothing that I can imagine, except a desire to avoid the nuisance of street digging in front of his house; a digging, however, entailing no expense upon him. Yet even this nuisance is in all human probability impossible of occurrence because of the beneficially monopolistic character of defendant's present occupancy of the streets of the city. Nor is there proof in the case of the value of what complainant calls good will, on which point I agree entirely with the master.

"From the testimony I think it apparent that what is here meant by good will is the organization of complainant, long established and doubtless well manned and equipped. Such organization is clearly of value, because without it neither its tangible nor intangible property can be profitably managed. Yet the organization itself is but a method of utilizing that which is invested. It is really dependent for its existence and continuance upon the franchise, without which there can be no useful organization. Tangible property has a certain value entirely apart from franchise, or right to continue business, or method of transacting business; but good will in the sense of organization for the business of furnishing gas can have no existence whatever apart or detached from the franchise conferring the necessary privilege. Would anyone think of capitalizing good will of this kind and distributing its assumed value in the shape of new shares among shareholders, new or old? I think the most ingenious financier could not imagine such a proceeding, and if this good will be not property capable of such capitalization and distribution, I do not think it property capable of capitalization as against the State.

"Finally, this claim of good will seems to forget that for many years the price and distribution of complainant's gas has been regulated by law. A citizen is entitled to have a clean street before his house because he pays taxes, *inter alia*,

for the purpose. He is much more plainly entitled to have complainant's gas in his house because the company must give it to him if he pays for it. I think it apparent that the conceivable good will of a gas company in this city is about equal to that of the street cleaning department."

This ruling is affirmed by the Supreme Court in its decision of January 4, 1909.

The Court says on p. 200 of 29 Sup. Ct. Rep.:

"We are also of opinion that it is not a case for a valuation of 'good will.' The master combined the franchise value with that of good will, and estimated the total value at \$20,000,000. The complainant has a monopoly in fact, and a consumer must take gas from it or go without. He will resort to the 'old stand,' because he can not get gas anywhere else. The court below excluded that item, and we concur in that action."

2. ELEMENT OF FRANCHISE.

This brings us to a consideration of the second "element of value," which, it is alleged, the Board of Supervisors failed to consider, the "Element of Franchise."

Here let us reiterate certain principles which have been stated earlier in this discussion. A public service corporation consists of two elements—a public and a private estate. The individual or corporation invests in and constructs the private estate; the public entrusts to the individual or corporation, the privilege of using the public estate. The franchise is but a privilege from the public to the individual to use his estate in a particular way. If revenue is to be collected upon the franchise of a water company, the public is taxed for

the use of that which it has itself bestowed upon the corporation.

The nature of a franchise is shown by the following definitions:

In *Bank of Augusta vs. Earle*, 13 Peters, 595, Chief Justice Taney defined franchises as "special privileges "conferred by government upon individuals and which "do not belong to citizens of the country generally, of "common right."

In *Woods vs. Laurence County*, 1 Black, 409, the word is thus defined:

"A franchise is a privilege conferred, in the United States, by the immediate or antecedent legislation of an act of incorporation, with conditions expressed, or necessarily inferential from its language, as to the manner of its existence and for its enjoyment."

In *California vs. Central Pacific R. R. Co.*, 127 U. S., 40, it was said:

"Generalized, and divested of the special form which it assumes under a monarchical government based on feudal traditions, a franchise is a right, privilege, or power of public concern, which ought not to be exercised by private individuals at their will and pleasure, but should be reserved for public control and administration, either by the government directly, or by public agents acting under such conditions and regulations as the government may impose in the public interest and for the public security."

Without multiplication of authorities, it may be stated generally that a franchise is always a *privilege* granted by the sovereign power to an individual or corporation.

In California, these privileges granted to corporations similar to complainant are declared to be property—incorporeal hereditaments. It is to be noted, however, that the constitutional provisions and the decisions thereunder relate exclusively to the question of taxation or assessment.

Cal. Const., Sec. 1, Art. 13;

In re N. B. & M. R. R. Co., 32 Cal., 499;

Stockton Gas Co. vs. San Joaquin Co., 148 Cal.,

313.

If a franchise is taxable property, does it necessarily follow that it is property in the possession of a water company upon which the rate-payers must pay the company an income? Notwithstanding what is said in the decision in the 1908 case, we respectfully submit that such result does not follow. The argument that if the city compels the complainant company to pay taxes on its franchise it must of necessity allow it income on the same franchise, loses its weight when it is remembered that whatever taxes are paid by complainant are returned to it, in addition to its other charges, out of the rates. As long as the Board of Supervisors allow the water company full reimbursement in the rates for all taxes paid (as they always have done), the amount of taxes levied makes no material difference to the company. The rate-payers are simply contributing such taxes for the support of the government.

The language of the Supreme Court in the recent

case of *Willcox vs. Consolidated Gas Co.* (Jan. 4, 1909) is conclusive on this point:

“The complainant also contends that the State having taxed it upon its franchises can not be heard to deny their existence or their value as taxed.

“The fact that the State has taxed the company upon its franchises at a greater value than is awarded them here, is not material. Those taxes, even if found upon an erroneous valuation, were properly treated by the company as part of its operating expenses, to be paid out of its earnings before the net amount could be arrived at applicable to dividends, and if such latter sums were not sufficient to permit the proper return on the property used by the company for the public, then the rate would be inadequate. The future assessment of the value of the franchises, it is presumed, will be much lessened if it is seen that the great profits upon which their value was based are largely reduced by legislative action. In that way the consumer will be benefited by paying a reduced sum (although indirectly) for taxes.”

29 Sup. Ct. Rep., p. 199.

The authorities upon this question of the propriety of an additional allowance upon an alleged franchise value for the purpose of fixing rates are in an unsatisfactory state. The Complainant has quoted certain dicta tending to substantiate the contention that a separate value should be allowed for franchise. They cite but one case in which such allowance was actually made for the purpose of fixing rates. And this, the case of *Consolidated Gas Co. vs. New York*, has since been reversed by the United States Supreme Court.

In the case at bar no special value in franchise has been proved and, therefore, the present discussion is largely academic. We shall, however, review the au-

thorities cited by Complainant and state our own position as to this species of "property."

As is shown by the decision in the Consolidated Gas Co. case, in the Circuit Court (both in the original and supplemental opinions), the conclusion there announced is contrary to the personal convictions of the writer of the opinion as to the correct principles governing the question. No more forceful presentation of the two doctrines on this subject can be made than by contrasting the portions of Judge Hough's opinion quoted in complainant's brief (pp. 28-31), and his personal opinions as contained in a former portion of the opinion (157 Fed., 873-874). It is there said:

"In this case complainant's position may, I think, be accurately stated thus: the right to place gas mains in the streets of New York and maintain them for private profit is in and of itself something upon or from which an income return may be justly and lawfully demanded, a return different and separable from that derived from all the company's tangible property or any part thereof. It is not asserted that any such right was ever bought by complainants from either state or city, or that for such right any valuable consideration was ever paid in the usual legal sense of those words. Indeed, the asserted rights all date from that time in American economics when those promoting public works were regarded as public benefactors, and the right to serve the public was something thought to be sufficiently paid for by the act of service. In these later days, however, complainant, finding itself treated rather as a malefactor than a benefactor, brings this action to ascertain, *inter alia*, whether the latest statutory rate leaves it a fair return not only upon its tangible property, but upon the right to use that property in the gas business, which right is commonly called a franchise. As an original proposition, I believe this claim unsound. Return can be expected only from investment, and he that invests must part with something in the act of invest-

ing. He that hath not sown shall not reap, and can it be said that complainant here, or any other corporation similarly situated, has invested its franchise in its business? It did not invest in its franchise because it did not part with it in the same way that it parted with money or money's worth in acquiring or creating mains or plants. The investment of property was made not in the franchise, but under the franchise, and on the faith thereof. The franchise is but a part of the power or privilege of sovereignty, allotted to a private person for the benefit of all and only incidentally given for private emolument.

"If all franchises so allotted are private property for the purpose of rate regulation, as fully as land or money is private property, the nature of the doctrine is best seen by considering the case of a franchise just granted under which no capital has yet been invested, or one the use of which demands or permits no investment other than personal service or labor. Thus if a private citizen be now granted the franchise here claimed by complainant, i. e., the right to establish and maintain gas mains in the streets of this city, what is the nature of the property right in such citizen before a main is laid or a foot of gas manufactured? What is its worth apart from performance under it and how can it be valued at its birth? Yet unless it can be seen to possess inherent value entirely apart from the earning capacity of the subsequent investment or from the actual earnings resulting from such investment, the value asserted or claimed is but a duplication of that derived from the use of the tangible property when so invested.

"Again, let it be supposed that a citizen be granted a franchise to perform personal service only. The franchise of being a town crier or herald is a historical illustration. Such franchise is not different in kind from that here under consideration. Is there any value attached to that franchise beyond the right of working under its protection for a fair wage? And would the herald be justified in charging two prices for his proclamation; one for his service, and the other as return or income on his franchise?

"The concepts of the nature and value of franchises are seen dimly and confusedly because of the failure to distinguish between productive and non-productive property.

Land, money, chattels, may by industry and intelligence be made productive without a franchise; but no excellence in these desirable qualities can ultimately render a franchise productive without the use of money, chattels, and land in conjunction therewith, and when the juncture is made the earning capacity of the real and personal property, plus the franchise, and plus intelligence and industry, is really no greater than it would be without the franchise, for the franchise had added no producing power to the realty or personalty; it has but authorized their employment in a particular way, and protected the owners while so employing them.

"I can imagine no more than three ways in which the value of a franchise can be stated. It is valuable, (1) because it authorizes the gainful use of private property in a particular manner; (2) because once obtained, it is often difficult or impossible to get another like it, and (3) because it may be used to injure or hinder another enterprise although itself conferring or securing nothing of value. The third method of statement has been accurately, though colloquially described as 'nuisance value' and is so obviously illegitimate as to require no discussion. The second method of statement, when carefully considered, asserts that because the sovereign has deemed it advisable to intrust a public work to one citizen or body of citizens, such quasi monopolistic grant confers the right to charge for the service more than would be just or lawful were the occupation open to all. Nor does it change the truth of the last statement that the difficulty of procuring franchises produces, and long has produced, traffic in them. On every private sale of franchise property the price paid is so much money lost to the public by official incompetence or worse, and such sale can confer on the vendee no right to compel the consumer to repay him a price which should have been paid to the state. For these reasons I believe that on principle a franchise should be held to have no value except that arising from its use as a shield to protect those investing their property upon the faith thereof, and that, considered alone and apart from the property which it renders fruitful, it possesses no more economic value for the investor than does an actual shield possess fighting value, apart from the soldier who bears it."

Notwithstanding these personal convictions, Judge Hough felt himself constrained "by methods of reasoning pursued in well-considered cases dealing with kindred topics; and even by the dicta of courts of approved authority" (p. 874) to hold otherwise. After referring to the cases holding that franchise value must be considered in condemnation cases, the opinion proceeds:

"Yet it was said in *Smyth vs. Ames*, 169 U. S., 544, that the 'apparent value of the property and franchises used by the corporation' was, *inter alia*, to be considered when determining the rates that might reasonably be charged; and in the same case it was asserted as a general proposition that a 'corporation may not be required to use its property for the benefit of the public without receiving just compensation for the services rendered.' P. 546 of 169 U. S."

Here Judge Hough assumes that Justice Harlan meant to include franchise under "its property." Justice Harlan does not say so. On page 544 of his opinion, in discussing fictitious capitalization, he does use the following words: "And the apparent value of the property and franchises used by the corporation as represented by its stocks, bonds and obligations, is not alone to be considered when determining the rates that may be reasonably charged."

The Court is here attacking the very thing which Judge Hough gives as the reason for allowing a franchise value. On page 578 of 157 Fed., Judge Hough says:

"I consider the real reason for that identification of regulation and condemnation proceedings which compels me to

consider the value of franchises to be that for generations it has been the universal practice of American corporations, supported by the opinions of courts and counsel, to capitalize their franchises for all it was thought the traffic or business would bear until the country is full of shareholders whose certificates of stock are based upon the belief that in some way or other such certificates were legally created pieces of property, and would like other property be protected by federal and state constitutions."

As to this fictitious valuation and capitalization, Justice Harlan, of the highest tribunal, says:

"If a railroad corporation has bonded its property for an amount that exceeds its fair value, or if its capitalization is largely fictitious, it may not impose upon the public the burden of such increased rates as may be required for the purpose of realizing profits upon such excessive valuation or fictitious capitalization; and the apparent value of the property and franchises used by the corporation, as represented by its stocks, bonds and obligations is not alone to be considered when determining the rates that may be reasonably charged. What was said in *Covington & Lexington Turnpike Road Co. vs. Sanford*, 164 U. S., 578, 596-7, is pertinent to the question under consideration. It was there observed: 'It can not be said that a corporation is entitled as of right and without reference to the interests of the public, to realize a given per cent upon its capital stock. When the question arises whether the Legislature has exceeded its constitutional power in prescribing rates to be charged by a corporation controlling a public highway, stockholders are not the only persons whose rights or interests are to be considered. The rights of the public are not to be ignored. It is alleged here that the rates prescribed are unreasonable and unjust to the company and its stockholders. But that involved an inquiry as to what is reasonable and just for the public. . . . The public can not properly be subjected to unreasonable rates in order simply that stockholders may earn dividends. The Legislature has the authority, in every case, where its power has not been restrained by contract, to proceed upon

the ground that the public may not rightfully be required to submit to unreasonable exactions for the use of a public highway established and maintained under legislative authority. If a corporation can not maintain such a highway and earn dividends for stockholders, it is a misfortune for it and them which the Constitution does not require to be remedied by imposing unjust burdens upon the public. So that the right of the public to use the defendant's turnpike upon payment of such tolls as in view of the nature and value of the services rendered by the company are reasonable, is an element in the general inquiry whether the rates established by law are unjust and unreasonable.' ”

Smyth vs. Ames, 169 U. S., 544-5.

When the Court finally comes to consider the true basis of valuation on page 546 of 169 U. S., franchise is not mentioned. What the Court does say is:

“We hold, however, that the basis of all calculation as to the reasonableness of the rates to be charged by a corporation maintaining a highway under legislative sanction, must be the fair value of the property being used by it for the convenience of the public. And in order to ascertain that value, the original cost of construction, the amount expended in permanent improvements, the amount and market value of its bonds and stock, the present as compared with the original cost of construction, the probable earning capacity of the property under particular rates prescribed by statute, and the sum required to meet operating expenses, are all matters for consideration, and are to be given such weight as may be just and right in each case. We do not say that there may not be other matters to be regarded in estimating the value of the property. What the company is entitled to ask is a fair return upon the value of that *which it employs* for the public convenience. On the other hand, what the public is entitled to demand is that no more be exacted from it for the use of a public highway than the services rendered by it are reasonably worth.”

Following this, Judge Hough quotes from the San Diego case (118 Cal., 567), where the principal opinion of the State Supreme Court adopted the very general rule that "the public must pay the actual value of that which it appropriates to the public use."

The doctrine of this last decision that a public service corporation is but the agent of the public in administering a public use, would not seem to warrant the conclusion that the principal should pay the agent an income on what it has itself entrusted to such agent.

The reference to franchise in *Spring Valley Water Works vs. San Francisco* (124 Fed., 594), was not made the basis of the decision and therefore is not authority.

The remaining cases cited by Complainant are condemnation proceedings and therefore not authority in the present inquiry.

Both of the Maine decisions were rendered by Judge Savage, and as the later opinion has explained the former, even then the Court is not decisive in giving a special value to franchise. The Court says: "It is the difference between a structure existing by sufferance and one maintained by right." As has been said above, a plant without a franchise would be practically valueless. Hence to show that the investment has not been made in vain, it should be shown that the public has given the privilege to the individual to use his estate in a particular way.

In the standard text book on rate regulation, the conclusion is reached that the value of the franchise can not be considered as a part of the capital upon which rates should be computed. It is there said:

"It must be clear that in estimating the capital upon which a public service company is entitled to a fair return, the value of a franchise enjoyed by the company can not be considered. The value of the franchise is itself based on the capacity of the company to earn profits, and it becomes greater when the earnings of the company are increased. If, therefore, a high rate of income could be justified on account of the great value of the franchise, this fact would in turn enhance the value of the franchise itself and so justify a still higher charge; and there would be no limit to the legal charge of the company until the limit of the charge which was in fact possible as a matter of business had been reached."

Beale & Wyman on Rate Regulation, Sec. 362.

In *Messenger vs. Pennsylvania*, 36 N. J. L., 413, it is said:

"Although in the hands of a private corporation, they are still sovereign franchises, and must be used and treated as such; they must be held in trust for the general good."

A review of the cases above cited and discussed should indicate that franchise valuation for the present purposes is still an open question. Certain dicta indicate that such value should be allowed, while in other cases as well as in the standard text book on rate regulation there is language equally strong that such valuation should not be allowed. The Supreme Court of the United States has never found it necessary to decide the question. In the recent decision of *Willcox vs. Consolidated Gas Co.*, of January 4, 1909, there is, however, a strong indication of the attitude of the Supreme Court on this species of value.

The Court below allowed \$12,000,000 for franchise value in addition to the \$7,781,000 at which the fran-

chise was originally capitalized, and which capitalization the State had recognized under the consolidation statute. As to the position taken by the Court below, the Supreme Court says on page 197 of 29 Sup. Ct. Rep:

"The judge stated his own views as opposed to including these franchises in the property upon the value of which a return is to be calculated in fixing the amount of rates, but held that he was bound by decided cases to hold against his personal views.

"We are not prepared to hold with the court below as to the increased value which it attributes to the franchises. It is not only too much a matter of pure speculation, but we think it is also opposed to the principle upon which such valuation should be made. This corporation is one of that class which is subject to regulation by the Legislature in the matter of rates, provided they are not made so low as to be confiscatory. The franchises granted the various companies and held by complainant consisted in the right to open the streets of the city and lay down mains and use them to supply gas, subject to the legislative right to so regulate the price for the gas as to permit not more than a fair return (regard being had to the risk of the business) upon the reasonable value of the property at the time it is being used for the public."

The Court refuses then to allow any separate value for franchise (in fact, for any so-called separate intangible values), except as to the \$7,781,000 item. This last item will, no doubt, be sought by the "public service value seekers," as a justification for the contention that a separate value should be allowed for franchise. We respectfully submit, however, that this conclusion does not follow. Moreover, we contend that the decision indicates conclusively that the Supreme Court

will not allow any such separate item for franchise value for the purpose of fixing rates except under the peculiar facts of the New York case. The finding of the Supreme Court is in no way an adoption of the separate franchise value. The Court is but consistently following a well-established principle of constitutional law enunciated in *Gelpcke vs. Dubuque*, 1 Wall, 175, where, in concluding the opinion, the Court says:

“The sound and true rule is, that if the contract, when made, was valid by the laws of the State as then expounded by all departments of the government, and administered in its courts of justice, its validity and obligation can not be impaired by any subsequent action of legislation, or decision of its courts altering the construction of the law.”

The State had recognized a capitalization of franchise to the extent of \$7,781,000. Bondholders and purchasers had acted under this legislative recognition and now the State can not be heard to say that there was no such valuation; not because it was franchise, but because the State had recognized it. It was with reference to this kind of franchise that the Court says on page 196 of 29 Sup. Ct. Rep:

“It cannot be disputed that franchises of *this nature* are property and can not be taken or used by others without compensation.”

Aside from this value recognized by legislative act, the Court refused to allow any such separate item, and on page 198 of 29 Sup. Ct. Rep., indicates that it is only under the peculiar circumstances of this particular

case that a separate value in franchise will be allowed. The Court there says:

“What has been said herein regarding the value of the franchises in this case has been necessarily founded upon its own peculiar facts, and the decision thereon can form no precedent in regard to the valuation of franchises generally, where the facts are not similar to those in the case before us. We simply accept the sum named as the value under the circumstances stated.”

This decision of the Supreme Court certainly established the true rule that no special value should be attributed to franchise as a basis for fixing rates to the public unless under the peculiar facts of this New York case. As between private individuals the privilege of performing a particular service may be considered of considerable value. The same may be true where the individual is being deprived of the franchise altogether. So long, however, as the individual is permitted to supply the service and to receive a reasonable income upon the value of that which he has invested, he is in no manner being deprived of the franchise or any other property without due process of law or adequate compensation. The franchise is a privilege to the individual to use his property in a particular way. Its value arises purely by virtue of the grant to the particular individual. This grant, however, is one “in trust for the general good.”

If the transportation of a trunk from a railroad terminal is worth fifty cents when the privilege of soliciting the business is open to all, it is worth no more if the railroad company grants the exclusive privilege of

soliciting the business to a single transfer company; and yet such company can well pay largely for such privilege. The fact that a privilege is of value to its holder does not justify an increase of charge for service rendered under it. If this is true with regard to such privileges as the one above cited, it is more strongly true of privileges granted by the public for the public good.

A franchise may for some purposes be considered as property. But it must not be forgotten that every franchise of a public service company is a privilege or right intrusted to the individual by the sovereign State for a public purpose, and that its value arises by virtue of the fact that the State has intrusted it to the particular individual. It is a valuable privilege for which the particular individual who is permitted to exercise it should pay tribute to the State and for which he possibly should receive compensation were he deprived of it altogether, but so long as he is allowed to exercise it he should never be allowed to increase the rates because of this value arising by virtue of the public grant for the public benefit.

Our conclusion on Franchise, as well as upon Going Concern and Good Will, as based upon the authorities and on principle, is that none of them should be disregarded. All should be considered, but they should be considered as characteristics of the concern, and not as possessing special values of their own. As Judge Vann puts it in *People ex rel Met. St. Ry. Co. vs. Tax Com.*, 174 N. Y., 443, in discussing a combination of several franchises, "While the strength of the chain is in the

links, the value of the links is in the chain." Truly a concern without a franchise or without the characteristics of "Going Concern" would be practically worthless. It would be as wasted energy and scrap iron scattered and buried in the ground. The elements should be considered as showing that the investment is not a counterfeit. The real question, however, is the investment. What has the company put into it? What is this worth to-day? What would it cost to reproduce it in its present form? The city might reproduce this plant. What in labor, materials and administration would it cost to reproduce a plant similar to that which the company now has? What is the present value of the private estate?

The franchise is a sovereign right. Does Complainant demand a sovereign right as its own and an income upon this sovereign right, because the public has granted it the privilege of investing under the sovereign right? It would seem scarcely more presumptuous were the Governor to sublet the State House on his own private account after the public had granted him the privilege of its honors.

VALUATION OF A FRANCHISE.

The difficulty of giving any separate value to franchise in cases of this character is indicative of the fact that there is no such value.

When a corporation is allowed a reasonable rate of income upon its actual investment, no difficulty arises. With franchise, however, it is different. If a rate is allowed which brings an income over and above a fair

income on the actual investment, then the franchise is valuable; if this is not allowed, no particular value attaches to the franchise. In other words, value of franchise must depend upon the rate of income, but complainant demands a rate of income on the value of the franchise. If it has a value, it must have been shown to have produced an income over and above current rates of interest upon the invested capital. The absence of any such proof, the proof of the contrary condition in this particular case and the reason for no discoverable value to the franchise of this complainant company are so clearly stated in Judge Farrington's decision in the 1908 case, that no more forceful argument can be made than to quote from that decision:

"The burden of proof is on complainant. Complainant must, if it wishes its franchise and going business to be treated as things of definite value, establish that value (*Capital City Gas Co. vs. Des Moines*, 72 Fed., 818, 822). It is not the duty of the court, nor was it the duty of the supervisors, to give value to the franchise, and add that value to the physical property, unless it first appeared that the franchise had an intrinsic productive value of its own. Their duty was and is to measure the disclosed and apparent value of the franchise." 165 Fed., 693.

On page 695, after making computations, Judge Farrington continues:

"It would seem from this that the Spring Valley revenues have never been adequate to yield anything in excess of a fair return upon the capital actually put into the plant. There has been no income which might be credited as earnings to the franchise in addition to and above what is apparently a scant reward for actual capital invested.

"The conditions thus disclosed do not necessarily predicate

unfair action by the Board of Supervisors. It may be that the Water Company itself has been extravagant, or that its investments have been larger than the needs of San Francisco demanded.

"If the company could be assured of a certain income for a definite number of years, stability would be given to the investment, and probably the franchise and going business would become exceedingly valuable; but this is impossible under a law which requires annual adjustment of water rates. The value of the franchise and going business depends upon their earning power. Their earning power depends upon the rates, and the rates at the present time are regulated by the Board of Supervisors. If the board establishes rates higher than an adequate return for the physical plant requires, either by increasing the rate of income or by adding to the value of the plant itself, an earning power, and consequently value, is thus given to the franchise and going business, in addition to and above the earning power and the value of the physical plant. . . .

"But here it does not appear that the franchise is defined by any specific contract with the city; neither is it an exclusive franchise; and it is not shown that the market value of the stock and bonds ever exceeded the value of the physical property. . . .

"If the franchise and going business have ever had a distinct, independent, productive value, it should appear somewhere or at some time in an exhibition of distinct earning power. If it be assumed that the net annual income of the Spring Valley plant for fifty years past has been but 5%, it is conceivable that the property without any franchise, and without any going business in San Francisco or in any other municipality, could not have earned more than 3%. This difference of 2% might fairly be considered as representing the earning power of these two elements, and as the controlling factor in calculating their value. In fixing this difference, it is to be considered as a part of the 5%, it is not to be added to it, because that would be making a gift, to create, not to find value. The mere fact that a franchise has been given and is in operation, lays no duty to add to its value upon the municipal government, which was not present when the franchise was originally acquired."

3. ELEMENT OF VALUE BECAUSE OF THE ABILITY OF THE WATER SYSTEM TO EXPAND FOR FUTURE USE AND OF THE PROPERTY NOW HELD FOR USE IN IMMEDIATE FUTURE.

This contention is forcibly disposed of by the decision in the 1908 case, page 697 of 165 Fed.:

"It is not just to compel consumers to pay more than they receive, or to pay complainant an income on property which is not actually being used in gathering and purchasing water. If in this case, the company, in anticipation of the growth of the city and its future needs, acquired property for future use at a cost of hundreds of thousands of dollars which is now worth millions, it has acted wisely, but it should be satisfied with the goodness of its bargain and the enhanced value of its property, without asking in addition gratuities from its customers in the way of higher rates. When the property does come into necessary service, the company is entitled to have it credited at its then fair and reasonable value for rate-fixing purposes. *San Diego Land Co. vs. National City*, 74 Fed., 79.

"What the company is entitled to demand, that it may have just compensation, is a fair return upon the reasonable value of the property at the time it is being used for the public. *San Diego Land Co. vs. National City*, 174 U. S., 739, 757.

"The statement of this rule in practically all the cases, in the present tense, is significant. In *San Diego Land Company vs. Jasper*, 189 U. S., 439, 449, Mr. Justice Holmes says:

"'If a plant is built, as probably this was, for a larger area than it finds itself able to supply, or, apart from that, if it does not yet have the customers contemplated, neither justice nor the constitution requires that, say two-thirds of the contemplated number should pay a full return.'

"In *Water Dist. vs. Water Co.*, at page 376, Mr. Justice Savage uses the following illustration:

"'Suppose that a five-hundred horsepower engine was used

for pumping when a one-hundred horsepower engine would do as well. As property to be fairly valued the larger engine might be more valuable than the smaller one, yet it would not be said that it would be reasonable to compel the public to pay rates based upon the value of the unnecessarily expensive engine.'

"The corollary to this is, if the company sees fit to use for the mere catchment of water, lands which are much more valuable for other purposes, it is unreasonable in fixing rates to appraise such lands for more than they are worth as watershed areas. *Capital City Gaslight Co. vs. Des Moines*, 72 Fed., 829, 844; *Boise City I. & L. Co. vs. Clark*, 131 Fed., 415; *Cons. Gas. Co. vs. New York*, 157 Fed., 849, 854; *Beale & Wyman on R. R. Rate Reg.*, Secs. 343, 344, 462."

The rule that the value is to be based upon the property at the time it is being used is again affirmed by the Supreme Court in *Willcox vs. Consolidated Gas Co.*, at page 195 of 29 Sup. Ct. Rep.

4. ELEMENT OF VALUE DUE TO ABSENCE OF COMPETITION.

This claim for an element of value due to absence of competition is so astounding that the important cases on rate regulation have not even given it consideration. If the development of the law of public service companies indicates anything, it is that the public interest in these companies arises by virtue of the nature of the business and the tendency towards monopoly or absence of competition in these lines of business.

Absence of competition is a fact, common in a lesser or greater degree to all public service companies, which arises not by virtue of any acts or management of the company itself, but by virtue of the nature of the busi-

ness, by virtue of the situation of the public in relation to the sources of supply. It is this fact that gives rise to the public right.

Judge Savage said on page 386 of 99 Maine:

“When the worth of water to a consumer is to be estimated we are not limited to the value of water in itself, for it is an absolute necessity. Its value has no limit. Water, speaking abstractly, is priceless, it is inestimable. To sustain life it must be had at any price. And in this respect a public water service differs from all other kinds of public service.”

If the company is allowed to collect a rate based upon this value by virtue of absence of competition, the limits of the rates would have no bounds. The paragraph quoted by complainant is but a misdirected effort under the discussion of franchise and has been disposed of under a previous section.

5. ELEMENT OF VALUE DUE TO PHYSICAL CONDITIONS ATTENDING THE PURVEYING OF WATER IN SAN FRANCISCO.

It is difficult to understand just what complainant is contending for here. If it means that the labor bill was great owing to topographical conditions, then this will be accounted for under the value of plant. The cost of construction is the strongest kind of evidence of present value. If it means difficulty of distribution of water over the city, then it should be considered under operating expense, and it has no proper place under the discussion of valuation. We fail to see how pure difficulties have anything to do with valuation except as they may be considered under cost of reproduction.

6. ELEMENTS OF VALUE DUE TO COMPARATIVE EXCELLENCE OF WORKS BECAUSE OF SKILL AND FORESIGHT IN CONSTRUCTION AND PERFECTING OF SYSTEM.

This division of Complainant's contention and the subdivisions under it has again been disposed of by the opinion of Judge Farrington in the 1908 case. On page 692 of 165 Fed., the Court quotes from the *Water District case*, 99 Me., 387, as follows:

"It therefore seems to be reasonable that a public water service company undertaking to supply a community with water is bound to do so wisely and economically. It is bound to take advantage of practicable natural facilities."

On page 692 of 165 Fed., Judge Farrington makes the following observation:

"If it be said that San Francisco did not secure these natural advantages, these water rights and watershed lands, but suffered practically all the nearby sources of water to pass into the ownership of complainant, the answer is, these water rights were secured for public service, they are devoted to public service; they have little commercial value for any other purpose; they were acquired under a law which permits reasonable public control of such property for the public good, and that law was old when in *Aldnutt vs. Inglis*, 12 East., 527, 537, it was said:

"'Though this be private property, yet the principle laid down by Lord Hale attaches upon it, that when private property is affected with a public interest it ceases to be *juris privati* only; and in case of its dedication to such a purpose as this, the owners can not take arbitrary and excessive duties, but the duties must be reasonable.'"

After reviewing these various contentions in the light of principle and the authorities, they seem to resolve themselves into an effort to capitalize the very char-

acteristics which make complainant a water service company. A concern is absolutely essential. But the concern possesses very little value of itself. It requires the characteristics of a bountiful nature, a well-connected or going concern, and the good-will and franchise of the public. All these characteristics are absolutely essential to the concern; without them it is practically valueless. How can it be contended, however, that this concern cost or is worth so much because it has certain characteristics, plus so much for a special value for each one of its characteristics? It is the old story of capitalizing the characteristics of the gold dollar.

The sovereign State and municipality have permitted complainant to invest its capital in a public enterprise and to earn a reasonable income upon its investment, and it now seeks to capitalize sovereignty. Nature has provided water, and shaped the hills and valleys to gather and hold it, and complainant claims a special bounty on nature.

(e) DETERMINATION OF PRESENT VALUE.

As has been established under a separate heading of this brief, the ultimate result to be sought for in determining the "reasonable valuation" is the fair present value of the complainant's investment. Many facts may be material evidence in the determination of this final result; the amount of stock and bond issue, the estimated substitutional cost, the total actual investment and previous purchase price, all have greater or less weight according to the circumstances of the particular case.

1. STOCK AND BOND ISSUE.

The nominal capitalization may be some evidence of the actual present value. The facts may be such in the particular case that large allowance needs be made for over-capitalization. As was said in the case of *Grain Shippers' Assn. vs. Illinois C. Ry.*, 8 I. C. C., 158, at 182 (1900):

"The mere capital account of a railroad does not furnish a conclusive basis by which to adjust the amount of its earnings, for the reason, among others, that the capitalization of the railroads of the United States does not represent the actual amount of money invested in the properties, nor the actual value of the properties themselves from any standpoint. There is a continual temptation to increase the liabilities of a railroad company without any corresponding increase in actual value. Whatever of wastefulness or mismanagement there may have been in the construction or antecedent history of the railroad, whatever of jobbery or of thievery, even, is apt to find its way into the capital account until it is eliminated by some process of reorganization. In the organization itself, the capitalization has no relation ordinarily to the actual value of the property, but is made to depend upon the convenience or even the whim of those who manipulate the reorganization scheme. To make the capital account of our railroads the measure of their legitimate earnings would place, as a rule, the corporation which has been honestly managed from the outset under enormous disadvantages."

In the Knoxville decision of the Supreme Court of Jan. 4, 1909, Justice Moody says:

"Counsel for the company urge rather faintly that the capitalization of the company ought to have some influence in the case in determining the valuation of the property. It is sufficient answer to this contention that the capitalization is shown to be considerably in excess of any valuation testified

to by any witness, or which can be arrived at by any process of reasoning." 29 Sup. Ct. Rep., 151.

To the same effect are:

Lake Shore vs. Smith, 173 U. S., 684, 43 L. Ed., 858, 19 Sup. Ct., 565;

San Diego Land Co. vs. National City, 174 U. S., 739, 43 L. Ed., 1154, 19 Sup. Ct., 804;

San Diego Land Co. vs. Jasper, 189 U. S., 439, 47 L. Ed., 892, 23 Sup. Ct., 571;

Stanislaus Co. vs. San Joaquin, 192 U. S., 201, 48 L. Ed., 406, 24 Sup. Ct., 241.

2. SUBSTITUTIONAL COST.

The contention that the value of complainant's plant should be fixed by "the estimated cost of the next available substitutional system" has no basis in reason or law. Let us conceive of a situation, which might occur in this western country, where there is but one source of water supply within the State, adequate to the needs of a particular large city. Would the complainant's experts contend that the value of that single source should be based upon what it would cost to supply the water from some other State? This contention is conclusively disposed of by Judge Farrington in the 1908 decision on page 691 of 165 Fed.:

"Even if permissible, a valuation of the plant based on the estimated cost of the next available substitutional system, is at best problematical. There may be other equivalent substitutes which are cheaper. We must reckon, not only with the uncertainties of the estimate itself, with the relative serviceability and permanency of the substitute system, with

the relative quantity and quality of water which it is capable of furnishing, but also with undiscovered and overlooked elements which may greatly affect the cost. There is, however, a still more serious objection to this method of valuation. To say the value of the Spring Valley land and water rights for rate-fixing purposes is to be measured by the cost of the Tuolumne system, is to say that the price of Spring Valley water should be fixed by comparison with the cost of bringing water from Hetch-Hetchy. The same method was applied to railroad charges when rates were based on the cost of hauling freight by mule teams, that mode of transportation being the next most available substitute.

"The owner of private property sets the price at which others may buy or use it; he can not be compelled to accept less; this is his right of contract, but when he devotes his property to public use, he must submit to the right of the public to regulate his compensation for such use down to what is just both to himself and to the public and that compensation is to be based, not on the cost of the next available substitute, but on a fair, reasonable value of the property at the time it is used for public convenience. While the cost of a substitute system may be considered in finding the reasonable value of the Spring Valley plant, it can not be a controlling element. Otherwise, by securing control of all available sources from which water can be brought to San Francisco, the company might force a greatly exaggerated value upon its plant for rate-fixing purposes, and thus absolutely defeat the very object of government regulation.

"The value of water as a necessity of life is simply incalculable. San Francisco must have it at any price. Nature has provided a source of supply in the immediate vicinity. This supply, according to the complainant, is sufficient for the present needs of San Francisco with 400,000 population, and with development in the way of dams and conduits, it will be ample when San Francisco's population is 2,000,000."

3. ACTUAL INVESTMENT.

In estimating the question of the present value as well as the reasonable rate, the actual investment is a pri-

mary consideration. All through the cases, actual investment is given a prominent position, especially in arriving at present value. While it is true the courts have in certain instances qualified the importance of the actual investment in determining present value, this qualification has uniformly been applied as a limitation on the ultimate result.

If extravagant methods have been employed, the amount of the actual investment is subject to that limitation.

In *Ames vs. Union Pac. R. R.*, 64 Fed., 165, at p. 177, Judge Brewer says:

"What is the test by which the reasonableness of rates is determined? That is not yet fully settled. Indeed it is doubtful whether any single rule can be laid down, applicable to all cases. If it is said that the rates must be such as to secure to the owner a reasonable per cent on the money invested, it will be remembered that many things have happened to make the investment far in excess of the actual value of the property,—injudicious contracts, poor engineering, unusually high cost of material, rascality on the part of those engaged in the construction or management of the property. . . . In the cases before us, however, there is abundant testimony that the cost of reproducing these roads is less than the amount of stock and bond account, or the cost of construction, and that the present value of the property is not accurately represented by either the stocks and bonds or the original construction account. Nevertheless, the amount of money that has gone into the railroad property—the actual investment, as expressed theoretically, at least, by the amount of stock and bonds—is not to be ignored, even though such sum is far in excess of the present value."

If economic changes or new inventions render the original investment less valuable, those facts must be

considered in arriving at the present valuation. In *Steenerson vs. Gt. Northern R. R.*, 69 Minn., 389, Judge Cauty uses the following language:

"But should the losses caused by all these economic changes be borne by the public, or by the owners of the railroad? There can be but one answer to this question. As we have repeatedly stated, neither the state nor the public have ever guaranteed that the railroads would always be worth the amount originally invested in them, or that what is a reasonable rate of income would not be less in the future than it was at the time of the investment, and have never guaranteed, directly or indirectly, either the interest or principle of railroad bonds."

In *Capital Gas Light Co. vs. Des Moines*, 72 Fed., 829, at p. 843, the Court said:

"Nor should there be included any amounts expended or investments made by plaintiff in its attempt or experiment, however laudable these attempts may have been, to supply fuel gas to the citizens of Des Moines, and which were expended or invested in directions not now required, or not properly serviceable for the company's present uses. These must be laid aside, among any other unprofitable investments in the history of the company. These may evidence the creditable desire of the company to keep its works fully abreast with progressive ideas of gas-making. But they are now of no market value. In other words, the Court may not now regard the rates as properly to be increased above what would otherwise be reasonable for the purpose of allowing plaintiff to recoup losses heretofore incurred in any unfortunate or unprofitable investments it has made, or to charge and receive interest on losses thus incurred."

Likewise, the actual investment is subject to limitation by reason of such deterioration in the plant as may be shown. As Justice Peckham said in *Stanislaus Land Co. vs. San Joaquin*, 192 U. S., 216:

"Much of the capital was invested between twenty and thirty years ago, and to be able still to realize 6 per cent upon the money originally invested is more than most people are able to accomplish in any ordinary investment, and more than is necessary in order to give just compensation for property at the time it is used for the public purpose originally intended."

These authorities indicate that the amount of actual investment may in the particular case be subject to many limitations. In numerous cases the companies have vigorously contended that the actual expenditures should govern entirely in the determination of the present value. This contention has in no case entirely prevailed. Uniformly the courts have subjected this amount to the limitations above indicated. It must, however, be admitted that the amount of the actual investment should be the controlling basis from which to reckon the present value.

Smyth vs. Ames, 169 U. S., 547;
San Diego Land Co. vs. National City, 174 U. S., 739;
Stanislaus County vs. San Joaquin C. & I. Co.,
 192 U. S., 215;
Brunswick Water Dist. vs. Maine, 99 Me., 371,
 at p. 379;
Griffin vs. Goldsboro Water Co., 122 N. C., 210.

In the case of *Stanislaus Land Co. vs. San Joaquin (supra)*, Justice Peckham says:

"Judging by this record, we are unable to say the Board of Supervisors failed to provide just and fair compensation for the use of the property by the public.

"In *San Diego Land Co. vs. National City*, 174 U. S., 739, it was held (following *Smyth vs. Ames*, 169 U. S., 466, 543, 544), that what the company was entitled to demand in order that it might have just compensation was a fair return upon the reasonable value of the property at the time it was being used for the public. The appellants in that case contended that in fixing what were just rates the Court should take into consideration the cost of the plant and of its annual operation, the depreciation of the plant, and a fair profit to the company above its charges for its services. It was observed by the Court that undoubtedly all these matters ought to be taken into consideration and such weight be given them, when rates are being fixed, as under all the circumstances would be just to the company and to the public. The same principle is affirmed in *San Diego Land Co. vs. Jasper*, 189 U. S., 439, 442. After taking such facts into consideration, the company might still be directed to receive rates that would be nothing more than a fair and just compensation or return upon the reasonable value of the property at the time it was being used for the supplying of the water to the public.

"To take the amount actually invested into estimation does not mean necessarily that such amount is to control the decision of the question of rates. Other language would have been employed to express that thought. The cost may be estimated, says the act, but that leaves open a reference to the other facts adverted to in the latter part of section 5, and it is under consideration of the whole case that the board is to determine what shall be reasonable, just and equal to all parties. The record would seem to show that the board did take these various matters into consideration in coming to the conclusion it did in regard to the value of the property, although giving much less weight to such alleged cost than the company thought was proper."

In *Brunswick Water Dist. vs. Maine* (*supra*), Judge Savage said:

"And the rates which it would be reasonable for the company to ask depend upon what would be a fair return,

under the circumstances, upon the value of the property used—a question which we shall discuss later on. In determining what would be a fair return, undoubtedly the amount of money actually and wisely expended is a primary consideration. Actual cost bears upon unreasonableness of rates, as well as upon the present value of the structure as such.”

In the case of *Griffin vs. Goldsboro Water Co.* (*supra*), the Court said:

“On the final hearing the cost and value of the property will be material in determining as to the reasonableness of the rates charged. The evidence offered on that point on the hearing below is not satisfactory, the mere amount of mortgage bonds issued on the property being no reliable guide to the courts as to the true value of the investment. It may be as sometimes happens, that the bonds and stocks are watered. Nor is the evidence of the cost of construction and operation conclusive, as has often been held, for it may be that the work was extravagantly constructed or is operated under inefficient management and the public are not called on to pay interest upon such expenditures, in the shape of unreasonable or extortionate rates. *Missouri vs. Smith*, 60 Ark., 221; *Chicago vs. Wellman*, 143 U. S., 339; *Livingstone vs. Sanford*, 164 U. S., 578.”

4. PURCHASE PRICE.

In case there has been a recent transfer of the plant, the consideration of such transfer is of primary importance in determining the present value. In such transfer the minds of the seller and purchaser meet in what they consider the actual value. Such purchase price constitutes the actual investment of the purchaser. As to the value of such evidence the Supreme Court says in *San Diego Land Co. vs. Jasper*, 189 U. S., 443:

“The property of the company and its predecessor consisted, not only of the water works, but of a large amount

of land. On the evidence the waterworks may be estimated at about a quarter of the total value. The earlier company was unable to raise the money it needed. Its bonds for \$500,000, secured by mortgage, were not worth more than 95, and an attempt to raise a further loan on the mortgage failed. The whole amount that the market and interested stockholders were willing to lend on all the security it could offer was \$650,000. The company was put into the hands of a receiver, who issued some certificates, which, we infer, were made a paramount lien. Then, by arrangement with the stockholders who were willing to go on, the mortgage was foreclosed and all the property was sold to these stockholders, for the nominal sum of \$889,163.33, which was equal to the amount of outstanding certificates and bonds, and was paid by turning them in. This was in 1897, a few months before the passage of the ordinance complained of. The purchasers organized the present corporation, and the above-mentioned sum is the cost of the land and waterworks to it. The appellant protests that this is not a fair value for the property of the company. We doubt whether it is not a liberal allowance. The officers of the two companies at the time thought that they got more than they could have got in any other way. But at all events, it is decided that the price is evidence, we might say more important evidence than the original cost. *Dow vs. Biedelman*, 125 U. S., 680, Ct. Rep., 1028. If the Supervisors were convinced by it we certainly could not say, as matter of law, that they were wrong."

5. THE BURDEN IS ON THE COMPANY AT EVERY STAGE OF THE PROCEEDING TO SHOW BY ACTUAL FACTS THAT THE RATES ARE NOT REASONABLE.

Chicago & Grand Trunk R. R. Co. vs. Wellman, 143 U. S., 339, 36 L. Ed., 176, 12 Sup. Ct., 400;

Chicago, Milwaukee R. R. Co. vs. Tompkins, 176 U. S., 167, at p. 173;

San Diego Land & Trust Co. vs. National City,
 174 U. S., 739, at p. 754; 43 L. Ed., 1154;
Steenerssen vs. Gt. Northern R. R. Co., 69
 Minn., 374;
Palatka Water Wks. vs. Palatka, 127 Fed., 165;
State ex rel R. W. C. vs. Minn. & St. P. R. R.
Co., 80 Minn., 197;
Chicago, M. & St. P. Ry. Co., vs. Tompkins, 90
 Fed., 363.

In *Chicago, Milwaukee R. R. Co. vs. Tompkins* (*supra*), the Court uses the following language:

“In approaching the consideration of a case of this kind we start in with the presumption that the act of the Legislature is valid, and upon any company seeking to challenge its validity rests the burden of proving that it infringes the constitutional guarantee of protection to property. The case must be a clear one in behalf of the railroad company, or the legislation of the State must be upheld.”

In *San Diego Land and Trust Co. vs. National City* (*supra*), the Court says:

“But it should also be remembered that the judiciary ought not to interfere with the collection of rates established under legislative sanction unless they are so plainly and palpably unreasonable as to make their enforcement equivalent to the taking of property for public use without such compensation as under all the circumstances is just, both to the owner and to the public; that is, judicial interference should never occur unless the case presents clearly and beyond all doubt such a flagrant attack upon the rights of property under the guise of regulation as to compel the Court to say that the rates prescribed will necessarily have the effect to deny just compensation for property taken for public use.”

In *State ex rel R. R. & W. C. vs. Minn.* (*supra*), Judge Collins says:

"The burden was on the defendant carrier when it resisted the enforcement of the order in the court below, and continued at every stage of the trial, and in respect to all matters affecting its earning capacity, its fixed charges, its operating expenses, its sources of revenue, and the value of the property itself; and the question is, was the *prima facie* character of the order of the commission swept away and overcome by the evidence, and was it shown by such evidence that the rates established were so unjust and unreasonable as to be confiscatory in their nature so that when the order was enforced it operated to destroy defendant's rights of property."

CASES IN WHICH PROOF HAS BEEN HELD INSUFFICIENT.

In the following cases the Supreme Court of the United States has held the proof insufficient to overcome the presumption that the legislative act is reasonable:

Dow vs. Beidelman, 125 U. S., 680, at p. 690;
Chicago vs. Milwaukee Ry. Co., 176 U. S., 167,
 at p. 173;

Minneapolis vs. St. Louis R. R. Co., 186 U. S.,
 257, at p. 268;

Atlantic Coast Line Ry. Co. vs. Florida, 203 U.
 S., 256, at p. 260;

Chicago Grand Trunk R. R. Co. vs. Wellman,
 143 U. S., 239.

Willcox vs. Consolidated Gas Co., 29 Supreme
 Court Rep., 192;

Knoxville vs. Knoxville Water Co., 29 Supreme Court Rep., 148.

In *Dow vs. Beidelman* (*supra*), the Court says:

“But there is no evidence whatever as to how much money the bonds cost, or as to the amount of the capital stock of the corporation as reorganized, or as to the sum paid for the road by that corporation or its trustees. It certainly can not be presumed that the price paid at the sale under the decree of foreclosure equaled the original cost of the road, or the amount of outstanding bonded debt. Without any proof of the sum invested by the reorganized corporation or its trustees, the Court has no means, if it would under any circumstances, have the power, of determining that the rate of three cents a mile paid by the Legislature is unreasonable.”

In *Chicago Ry. Co. vs. Wellman*, 143 U. S., 345, Justice Brewer says:

“Surely, before the Courts are called to adjudicate an act of the Legislature fixing the maximum passenger rates for railroad companies to be unconstitutional, on the ground that its enforcement would prevent the stockholders from receiving any dividends on their investments, or the bondholders any interest on their loans, they should be fully advised as to what is done with the receipts and earnings of the company; for if so advised it might clearly appear that a prudent and honest management would, within the rates prescribed, secure to the bondholders their interest, and to the stockholders reasonable dividends.”

In *Chicago, Milwaukee Ry. vs. Tompkins* (*supra*), the same Justice uses the following language:

“In approaching the consideration of a case of this kind we start with the presumption that the act of the Legislature is valid, and upon any company seeking to challenge its validity rests the burden of proving that it infringes the

constitutional guarantee of protection to property. The case must be a clear one in behalf of the railroad company or the legislation of the State must be upheld.

"Such being unquestionably the law, it is obviously of the utmost importance that the facts shall be clearly and accurately found and distinctly stated by the trial court, and that those facts shall sustain the conclusion reached.

"We are of opinion that neither the findings made by the Court, nor such facts as are stated in its opinion, are sufficient to warrant a conclusion upon the question whether the rates prescribed by the defendants were unreasonable or not, and we are also of opinion that the process by which the Court came to its conclusion is not one which can be relied upon."

In *Minneapolis & St. Louis Ry. Co. vs. Minnesota (supra)*, at page 268, Justice Brown concludes the opinion:

"It is sufficient, however, for the purpose of this case to say that the action of the commission in fixing the rate complained of as to this particular class of freight has not been shown to be so unjust or unreasonable as to amount to a taking of property without due process of law, and we therefore conclude that the judgment of the Supreme Court must be affirmed."

In stating the same conclusion in the case of *Atlantic Coast Line vs. Florida (supra)*, the Court uses the following language:

"There is testimony tending to show the gross income from all local freights and the value of railroad property, and also certain difficulties in the way of transporting phosphates owing to the lack of facilities at the terminals. But there is nothing from which we can determine the cost of such transportation. We are aware of the difficulty which attends proof of the cost of transporting a single article, and in order to determine the reasonableness of a rate prescribed it may

sometimes be necessary to accept as a basis the average rate of all transportation per ton per mile. We shall not attempt to indicate to what extent or in what cases the inquiry must be special and limited. It is enough for the present to hold that there is in the record nothing from which a reasonable deduction can be made as to the cost of transportation, the amount of phosphates transported, or the effect which the rate established by the commission will have upon the income. Under these circumstances it is impossible to hold that there was error in the conclusions reached by the Supreme Court of the State of Florida."

In *Knoxville vs. Knoxville Water Co.*, 29 Sup. Ct. Rep., at p. 153, Justice Moody says:

" . . . If a company of this kind chooses to decline to observe an ordinance of this nature and prefers rather to go into court with the claim that the ordinance is unconstitutional, it must be prepared to show to the satisfaction of the Court that the ordinance would necessarily be so confiscatory in its effect as to violate the Constitution of the United States. . . . But the case before us is not a case of this kind. Upon any aspect of the evidence the company is certain to obtain a substantial net revenue under the operation of the ordinance. The net income, in any event, would be substantially 6 per cent, or 4 per cent after an allowance of 2 per cent for depreciation. See *Stanislaus County vs. San Joaquin Company*, 192 U. S., 201. We can not know clearly that the revenue would not much exceed that return. We do not feel called upon to determine whether a demonstrated reduction of income to that point would or would not amount to confiscation. Where the case rests, as it does here, not upon observation of the actual operation under the ordinance, but upon speculations as to its effect, based upon the operations of a prior fiscal year, we will not guess whether the substantial return certain to be earned would lack something of the return which would save the effect of the ordinance from confiscation. It is enough that the whole case leaves us in grave doubt. The valuation of the property was an estimate and is greatly dis-

puted. The expense account was not agreed upon. The ordinance had not actually been put into operation, the inferences were based upon the operations of the preceding year; and the conclusion of the court below rested upon that most unsatisfactory evidence, the testimony of expert witnesses employed by the parties. The city authorities acted in good faith, and they tried, without success, to obtain from the company a statement of its property, capitalization and earnings."

In *Willcox vs. Consolidated Gas Co.*, 29 Sup. Ct. Rep., at pp. 196 and 199, Justice Peckham says:

" . . . But where the rate complained of shows in any event a very narrow line of division between possible confiscation and proper regulation, as based upon the value of the property found by the court below, and the division depends upon opinions as to value, which differ considerably among the witnesses, and also upon the results in the future of operating under the rate objected to, so that the material fact of value is left in much doubt, a court of equity ought not to interfere by injunction before a fair trial has been made of continuing the business under that rate, and thus eliminating, as far as is possible, the doubt arising from opinions as opposed to facts." . . .

"Both depend largely upon the opinions of expert witnesses as to the value of that kind of property. Where a large amount of the total value of a mass of different properties consists in the value of real estate, which is only ascertained by the varying opinions of expert witnesses, and where the opinions of the plaintiffs' witnesses differ quite radically from those of the defendants, it is apparent that the total value must necessarily be more or less in doubt. It, in other words, becomes matter of speculation or conjecture to a great extent. It may be, as already suggested, that in many cases the rates objected to might be so low that there could be no reasonable doubt of their inadequacy upon any fair estimate of the value of the property. In such event the enforcement of the rates should be enjoined even in a case where the value of the property

depends upon the value to be assigned to real estate by the evidence of experts. But there may be other cases where the evidence as to the probable result of the rates in controversy would show they were so nearly adequate that nothing but a practical test could satisfy the doubt as to their sufficiency.

"In this case a slight reduction in the estimated value of the real estate, plants and mains, as given by the witnesses for complainant, would give a six per cent return upon the total value of the property as above stated. And again increased consumption at the lower rate might result in increased earnings, as the cost of furnishing the gas would not increase in proportion to the increased amount of gas furnished."

II. THE RATE OF INCOME.

(a) IN GENERAL.

The question of what is a fair rate of income must be determined largely by the circumstances of the particular case. It is difficult to lay down any general rules as settled law in determining what is a fair rate of return.

As pointed out in the 1908 decision, the former doctrine that courts can not interfere as long as some compensation, however small, is produced, has given way to the principle that public service corporations are entitled to a reasonable or fair income, and the courts must determine what is fair. The question as to what basis is to be used by the courts in this determination is, however, still an open one.

In *Covington & Lexington Turnpike Co. vs. Sanford*, 164 U. S., 578, at p. 596, the Supreme Court said: "It can not be said that a corporation is entitled as of right, and without reference to the interests of the pub-

“lic, to realize a given per cent upon its capital stock.” And it does not appear that this statement is at all limited in its application to fictitious capitalization. This position had been previously stated in *Reagan vs. Farmers’ Loan & Trust Co.*, 154 U. S., 363, at p. 412 as follows: “It is unnecessary to decide, and we do not wish to be understood as laying down an absolute rule, that in every case a failure to produce some profit to those who have invested their money in the building of a road is conclusive that the tariff is unjust and unreasonable.”

A tendency slightly more liberal towards the company might be gathered from the statements in *Smyth vs. Ames*, 169 U. S., 546, where the Court uses this language: “The corporation may not be required to use its property for the benefit of the public without receiving just compensation for the services rendered by it . . . what the company is entitled to ask is a fair return upon the value of that which it employs for the public convenience.”

Even the last statement leaves it an open question as to what is a fair return. And contrasted with it are the observations of Mr. Justice Brewer in the subsequent case of *Cotting vs. Kansas City Stock Yards Co.*, 183 U. S., 79, at p. 93, where he says:

“(the owner) expresses his willingness to do the work of the State, aware that the State in the discharge of its public duties is not guided solely by a question of profit. It may rightfully determine that the particular service is of such importance to the public that it may be conducted at a pecuniary loss, having in view a larger public interest. At any rate, it does not perform its services with the single idea

of profit. Its thought is the general public welfare. If in such a case an individual is willing to undertake the work of the State, may it not be urged that he, in a measure, subjects himself to the same rules of action, and that if the body which expresses the judgment of the State believes the particular services should be rendered without profit, he is not at liberty to complain. While we have said again and again that one volunteering to do such service can not be compelled to expose his property to confiscation, that he can not be compelled to submit its use to such rates as do not pay the expenses of the work, and therefore create a constantly increasing debt which ultimately works its appropriation, still is there not force in the suggestion that as the State may do the work without profit, if he voluntarily undertakes to act for the State he must submit to a like determination as to the paramount interests of the public?"

Some courts have placed emphasis on the legal rate. This position is ably answered by Judge Hough in *Consolidated Gas Co. vs. City of New York*, 157 Fed., 849, at page 870, where the Court uses this language:

"Nor can I think that the legal rate of interest in the State of complainant's incorporation or operation affords any light on the subject merely because it is established by law. As was observed by counsel equally learned in law and politics, it would be easy to amend the legal rate, and judicial dependence upon an interest rate susceptible of changes by the same Legislature that regulates the rate of earnings, would be, to say the least, inadvisable."

The same difficulties arise in a lesser or greater degree in the use of all comparative rates. Rates in a similar business, but of a different locality, must be considered in the light of the difference in the local conditions. And rates within the same community, but in different lines of business, are valuable only as they do or do not reflect similarity of business conditions.

Quoting again from the opinion of Judge Hough in the Consolidated Gas case (on page 870 of 157 Fed.):

"There is, however, evidential value in the established rate of usance for money in so far as it expresses the settled conviction of the business community as to the worth of capital invested in enterprises not usually regarded as hazardous. . . . The question then becomes largely local and decisions from one part of the country may be of small value in another, where conditions of life are different. The true note was, I think, sounded in *Milwaukee & Co. vs. Milwaukee*, 87 Fed., at 586, where the local rate was approved and non-hazardous securities were taken as the final criterion. Such a business situation is secured against competition because the monopoly is beneficial. For the same reason, and because the population and its wants will increase, so far as human foresight can perceive, the amount of business will also increase."

On the appeal of this case the Supreme Court, in its decision of Jan. 4, 1909, said:

"Under the circumstances, the Court held that a rate which should permit a return of six per cent would be enough to avoid the charge of confiscation, and for the reason that a return of such an amount was the return ordinarily sought and obtained on investments of that degree of safety in the city of New York." "Taking all facts into consideration, we concur with the court below on this question, and think complainant is entitled to six per cent on the fair value of its property devoted to the public use. But assuming that the company is entitled to six per cent upon the value of its property actually used for the public, the total value fixed by the court below is, as we have seen, much too large."

It will be noticed that the Court limits this rate to the particular circumstances of that case. In New York City the streets are highly congested; underground they are interlaced with a network of pipes, wires and tunnels. Moreover, the losses by leakage or

explosion and obsolescence of appliances in the manufacture of an artificial product such as gas are necessarily much greater than are incurred in the purveying of a natural product such as water. All these different considerations in the two cities may render the New York rate of little value in determining what should be a reasonable rate of income in the case at bar.

(b) CONTENTIONS BY COMPLAINANT.

1. DEPRECIATION AS PART OF THE RETURN.

The Complainant contends that the rate as fixed by the Board of Supervisors is unreasonable in that it does not make allowance for the depreciation of the plant and the hazard of the business. As will be argued under a subsequent division of this discussion, the question is one of ultimate result. It is immaterial that the terms "depreciation" or "hazard" are not mentioned in so many words.

The burden is upon the complainant to prove the extent of the depreciation, and to demonstrate that the rates as fixed by the Board of Supervisors are not sufficient as a whole to cover such amount.

This matter will be further discussed in a subsequent portion of this brief.

2. HAZARD OF THE ENTERPRISE.

The complainant has cited various authorities tending to show that when the nature of the business is such as to incur necessary hazard, this shall be given consideration. If this is conceded, the con-

verse must also be true, that if a business is by its very nature, practically devoid of any hazard, a much lower rate should be considered reasonable than the rate existing in the ordinary lines of business. The complainant fails to give any authorities to the effect that an established public water system is subject to any special hazard.

It is difficult to harmonize the contentions of complainant that its concern possesses special values due to its established organization, relative location, going concern, and absence of competition with this present contention that a high rate of income should be allowed due to the fact that the business is subject to special hazard. It is difficult to conceive of a safer investment than that in a concern engaged in supplying all the water to a great and growing city like San Francisco.

The product is not manufactured and therefore is not subject to change of styles or new inventions. It is not subject to explosion or fire. The business is by its very nature monopolistic. The topography of the city compels compactness of population and therefore small cost of service. A market for the complainant's product is always assured. The company has guaranteed to it a reasonable income upon the fair value of the property, and also its taxes and all its expenditures properly designated as "operating expense." And, as has been before indicated, the burden is on the company to show the facts relative to this expenditure. Until the facts prove to the contrary, it must be assumed that this \$600,000 covers the

actual cost of service, and the replacement of all deterioration. This liberal allowance largely accounts for the fact that the plant at present compares so favorably in value with its original cost. What other business venture enjoys an absolute guaranty of full reimbursement for all legitimate expenses, and a reasonable income upon the value of its investment? A merchant, subject to the uncertainties of market conditions, competition and the fickleness of popular demand, would laugh at the idea of hazard in such a business as this.

(c) THE ULTIMATE RESULT.

It is after all a question of ultimate result. It is not vital whether the Legislature has made a special allowance for taxes, operating expenses, and deterioration or not. It is a question of the fairness of the rate under all the facts of the particular case.

In *San Diego Land and Town Co. vs. Jasper*, 189 U. S., 446, it is said:

"We will say a word about the opposite contention of the appellant, that there should have been allowance for depreciation over and above the allowance for repairs. From a constitutional point of view we see no sufficient evidence that the allowance for 6 per cent on the value set by the supervisors, in addition to what was allowed for repairs, is confiscatory."

In the case of *Stanislaus County vs. San Joaquin C. & I. Co.*, 192 U. S., 213, Justice Peckham has the following to say:

"It is not confiscation nor a taking of property without

due process of law, nor a denial of the equal protection of the laws, to fix water rates so as to give an income of six per cent upon the then value of the property actually used, for the purpose of supplying water as provided by law, even though the company had prior thereto been allowed to fix rates that would secure to it one and one-half per cent a month income upon the capital actually invested in the undertaking. If not hampered by an unalterable contract, providing that a certain compensation should always be received, we think that a law which reduces the compensation theretofore allowed to six per cent upon the present value of the property used for the public is not unconstitutional. There is nothing in the nature of confiscation about it." . . . "Judging by this record, we are unable to say the Board of Supervisors failed to provide just and fair compensation for the use of the property by the public.

"In *San Diego Land Co. vs. National City*, 174 U. S., 739, it was held (following *Smyth vs. Ames*, 169 U. S., 466, 543, 544), that what the company was entitled to demand in order that it might have just compensation was a fair return upon the reasonable value of the property at the time it was being used for the public. The appellants in that case contended that in fixing what were just rates the court should take into consideration the cost of the plant and its annual operation, the depreciation of the plant, and a fair profit to the company above its charges for its services. It was observed by the court that undoubtedly all these matters ought to be taken into consideration and such weight be given them, when rates are being fixed, as under all the circumstances would be just to the company and to the public. The same principle is reaffirmed in *San Diego Land Co. vs. Jasper*, 189 U. S., 439, 442. After taking such facts into consideration, the company might still be directed to receive rates that would be nothing more than a fair and just compensation or return upon the reasonable value of the property at the time it was being used for the supplying of the water to the public.

"To take the amount actually invested into 'estimation' does not mean necessarily that such amount is to control the decision of the question of rates. Other language would have been employed to express that thought. The cost may be estimated, says the act, but that leaves open a reference

to the other facts adverted to in the latter part of Section 5, and it is upon a consideration of the whole case that the board is to determine what shall be reasonable, just and equal to all parties."

The opinion of Judge Morrow in *Spring Valley Waterworks vs. City of San Francisco*, 124 Fed., 599, is valuable in this connection:

"But in the present inquiry all doubts as to facts in controversy should be resolved in favor of the defendants, having in view what was said by the Supreme Court in *San Diego Land Co. vs. National City*, 174 U. S., 739, 754, 19 Sup. Ct. 804, 43 L. Ed. 1154, that judicial interference should never occur unless the case presents clearly and beyond all doubt a flagrant attack upon the rights of property. In view, therefore, of all the circumstances, the court is of the opinion that the complainant is entitled to receive at least five per cent as the net compensation it is entitled to receive on the value of its property."

This brings us to the recent decision in the 1908 case, where Judge Farrington, on p. 684 of 165 Fed., uses the following language:

"It is insisted that rates of interest have recently increased by one to two per cent, and consequently a five per cent income on its property in use is no longer just to the company. This reason is not conclusive. The conditions which have caused interest rates to rise are probably temporary. In times of financial distress when money is very much needed and not easily obtained, rates of interest go up, and many of those who most need money are forced to throw on the market property which otherwise they would hold. When usual quantities of property are for sale by owners who must have cash, prices fall. Thus it often occurs that high rates of interest are followed and counterbalanced by lower prices. Higher rates of interest do not necessarily indicate that complainant's services have become more valuable, nor do they

justify a higher rate of income without a corresponding adjustment in the value of the property on which the income is computed. *Steenerson vs. Northern R. R. Co.*, 69 Minn., 353, 387.

"An income of 5 per cent net, after all taxes, operating and other legitimate and proper charges are deducted from the gross income, is neither unreasonable nor confiscatory."

III. THE REASONABLE VALUE OF THE SERVICE.

The limit of income to which a public service company is entitled is a fair return upon a fair valuation. The courts, however, have placed a limitation upon the result thus produced by the rule that in no case is the company entitled to more than the reasonable value of the services.

Judge Savage has reviewed the authorities upon this point in the cases of *Kennebec Water District vs. Waterville*, 97 Me., at page 202, and *Water District vs. Water Co.*, 99 Me., on pages 380 and 381.

From the *Kennebec* case, on pages 202 to 204, we quote the following:

"Yet while the company is entitled, so far as this case shows, to a fair return upon the value of the property used for the public at the time it is being used, the public, that is the customers, may demand that the rates shall be no higher than the services are worth to them, not in the aggregate, but as individuals. The value of the services in themselves is to be considered and not exceeded. These views seem to be consonant with reason. They are also established by the highest judicial authority in our country.

"In *Smyth vs. Ames*, 169 U. S., 466, at page 553, the court said: 'Such a corporation was created for public purposes. It performs a function of the state. Its authority to exercise the right of eminent domain and to charge tolls was given primarily for the benefit of the public. It is under govern-

mental control, though such control must be exercised with due regard to the constitutional guaranties for the protection of its property. It cannot, therefore, be admitted that a railroad corporation maintaining a highway under the authority of the state may fix its rates with a view solely to its own interests, and ignore the rights of the public. But the rights of the public would be ignored if rates for the transportation of persons or property on a railroad are exacted without reference to the fair value of the property used for the public, or the fair value of the services rendered, but in order simply that the corporation may meet operating expenses, pay the interest on its obligations, and declare a dividend to stockholders.' Again at page 547: 'What the company is entitled to ask is a fair return upon the value of that which it employs for the public convenience. On the other hand, what the public is entitled to demand is that no more be exacted for the use of a public highway than the services rendered by it are reasonably worth.'

"Of course the same principles apply to the water rates as to railroad rates. *San Diego Land and Town Co. vs. National City*, 174 U. S., 739. In the case last cited, it was claimed by the appellant, as bearing upon just or reasonable rates for water service, that the court should take into consideration the cost, the cost per annum of operating the plant, including interest paid on money borrowed and reasonably necessary to be used in constructing the same, the annual depreciation of the plant from natural causes resulting from its use, and a fair net profit. The Court said, at page 757: 'Undoubtedly, all these matters ought to be taken into consideration, and such weight be given them, when rates are being fixed, as under all the circumstances will be just to the company and to the public. The basis of calculation suggested by the appellant is, however, defective in not requiring the real value of the property and the fair value in themselves of the services rendered to be taken into consideration. What the company is entitled to demand in order that it may have just compensation, is a fair return upon the reasonable value of the property at the time it is being used for the public.'

"In *Covington vs. Lexington Turnpike Road Co. vs. Sanford*, 164 U. S., 578, it was held that the nature and value

of the services rendered by a turnpike company bears upon the reasonableness of rates charged. And in the same case it was held that other considerations were involved, such as 'the reasonable cost of maintaining the road in good condition for public use, and the amount that may have been really and necessarily invested in the enterprise.'

"In *Cotting vs. Kansas City Stock Yards Company*, 183 U. S., 79, decided since these proceedings were begun, Mr. Justice Brewer declared, page 91, that, 'the present value of the property is the basis by which the test of reasonableness is to be determined, although the actual cost is to be considered, and that the value of the services rendered to each individual is also to be considered.'

"In the same case, at page 96, the case of *Canada Southern R. R. Co. vs. International Bridge Co.*, 8 App. Cases, 723, was cited with approval to the point that the question is not what profit it may be reasonable for a company to make, but what is reasonable to charge to the person who is charged. And Mr. Justice Brewer adds: 'The question is always not what does he make as the aggregate of his profits, but what is the value of the services which he renders to the one seeking and receiving such service. Of course, it may sometimes be, as suggested in the opinion of Lord Chancellor Selborne, that the amount of the aggregate profits may be a factor in considering the question of the reasonableness of the charges, but it is only one factor, and is not that which finally determines the question of reasonableness.'"

In the later Water District case, Judge Savage enlarges on his former statements as follows:

"The second requested instruction is that 'the rule that the public, that is, the customers, may demand that the rates shall be no higher than the services are worth to them, not in the aggregate, but as individuals, is to be invoked only for the protection of the public, and that in a case requiring its application, it may result in reducing rates, even if reasonable within the rule stated in the foregoing request, never in raising rates otherwise fair to the company.' We understand the purpose of this request to be that a public service com-

pany cannot lawfully charge in any event more than the services are reasonably worth to the public as individuals, even if charges so limited would fail to produce a fair return to the company upon the value of its property or investment. Such, we think, is the law. We have already so stated in the discussion of the preceding request in the Waterville case at page 202, we said: 'The public, that is, the customers, may demand that the rates shall be no higher than the services are worth to them, not in the aggregate, but as individuals. The value of the services in themselves is to be considered, and not exceeded.' The company engages in a voluntary enterprise. It is not compelled, at the outset, to enter into the undertaking. It must enter, if at all, subject to the contingencies of the business, and subject to the rule that its rates must not exceed the value of the services rendered to its customers. It has accepted valuable franchises granted by the state, franchises ordinarily exclusive for the time being, franchises which ordinarily debar the public from serving themselves satisfactorily in any other way, and in return it must perform the duties of the public which it has voluntarily assumed, at rates not exceeding the value of the services to the public, taken as individuals, and this irrespective of the remuneration it may itself receive."

The question as to how the reasonable value of the service to the consumer is to be determined does not seem to have received a judicial answer. It is submitted, however, that statistics as to the cost of water in other cities, considered under such comparisons as will eliminate differences of conditions of service as far as possible, furnish the most valuable evidence upon this point that has as yet been suggested. It was for this purpose that the elaborate tables prepared by Mr. Dockweiler were introduced in evidence, to which reference will be made in a subsequent portion of this brief.

ARGUMENT ON EVIDENCE.

MINUTES OF THE SPRING VALLEY WATER WORKS.

Frequent quotations are made in this Brief from the minutes of the Spring Valley Water Works. These minutes are in evidence in this case under the following stipulation, found on page 5769 of the record:

“MR. PARTRIDGE— . . . Let us stipulate that all the books and accounts of the San Francisco City Water Works, the Spring Valley Water Works and the Spring Valley Water Company may be considered in evidence and referred to by either party.

“MR. KELLOGG—That is right.

“MR. PARTRIDGE—That is whether they have been used by Mr. Reynolds or not.

“MR. KELLOGG—Yes; and that will cover Mr. Wenzelburger’s testimony as well.”

The particular minute books from which quotations have been taken were introduced in evidence by Mr. Reynolds on page 5767 of his testimony. The record refers to them as “Record books A to G, inclusive, of the San Francisco Water Works.” This is an error either in the record or of the witness, as the San Francisco Water Works had but one record book designated as No. 1. The subsequent record or minute books designated by the letters A to G, contain the records of the proceedings of the Board of Directors and stockholders of the Spring Valley Water Works, and were the books produced by the witness, and from which quotations are made in this Brief.

VALUE OF COMPLAINANT'S PROPERTIES.

What is said in the decision upon preliminary hearing in the 1908 case as to the important issue in that case is equally true upon this final hearing. "This case "comes here on one vital issue: Are the water rates "confiscatory? To this all other questions involved "are mere incidents." The answer to that question must be found in the examination of three factors, viz: the present value of complainant's properties; the proper rate of income to be allowed, and the reasonableness of the service. Of these factors the most complex and uncertain is the value of the complainant's plant.

As is shown in the foregoing discussion of the legal principles involved in this case, the burden of proof is upon the complainant at every stage of the proceedings. At no point in the case is this fact more important than in considering the question as to what value of complainant's properties is proved by the evidence. The presumption is in favor of the reasonableness and sufficiency of the rate as established by the Board of Supervisors. Unless the complainant has proven by a preponderance of convincing testimony that the income allowed to it by the Supervisors is not a fair return upon the fair value of its properties, the decree herein must be in favor of the defendants. In order to meet this burden, the complainant must, at the outset, prove by competent and persuasive testimony the value of its properties. A judicial decree cannot be based on theoretical estimates or guesses at value. The province of

the complainant is to prove the facts, leaving to the Court its proper duty of drawing conclusions therefrom.

The evidence submitted by complainant contains detailed estimates of the structural portions of its properties; but, as to its lands, water-rights, rights of way and so-called intangible values, the evidence is general and uncertain; is based largely upon conflicting opinions of expert witnesses; and is not of such a character as to form the basis of a judicial determination of value.

What is said in the 1908 decision (165 Fed., 693) as to the necessity of proof of franchise value can be paraphrased and applied with equal propriety to all other elements of value. Complainant must, if it wishes its properties to be treated as things of definite value, establish that value. It is not the duty of the Court to give value to such properties, unless it first appears they have a definite, ascertainable and disclosed value. Upon a preliminary hearing the Court may consider probabilities, but a final decree must be based on evidence which produces certainty.

After an exhaustive study of the voluminous record in this case, we confidently assert that THERE IS AN ENTIRE ABSENCE OF EVIDENCE IN THIS PROCEEDING UPON WHICH THE COURT CAN BASE A FINDING THAT THE VALUE OF COMPLAINANT'S PROPERTIES IS ANY GREATER THAN THAT FIXED BY THE DEFENDANTS' WITNESSES. The present subdivision of this brief will be devoted to an attempt to prove the accuracy of that assertion. The first inquiry in that connection is necessarily directed to the

COST OF COMPLAINANT'S PROPERTIES.

While the decisions of the Supreme Court declare that the original cost of the properties is not a controlling consideration in the determination of present value, they also recognize that such primal cost is an important factor to be taken into consideration in arriving at such value. As is said by Judge Savage in *Brunswick Water Dist. vs. Maine*, 99 Me., 379:

"In determining what would be a fair return, undoubtedly the amount of money actually and wisely expended is a primary consideration."

We submit that it is the most important consideration.

In discussing the case of *San Diego Land Company vs. National City*, 174 U. S., 757, Judge Works in his text book on Irrigation, at page 76, says:

"This basis of fixing rates is fair and just, and, if fairly lived up to in practice, no injustice can result. But it embodies two elements of uncertainty. Who can arrive, with any degree of certainty, at the present value of a water plant the greater part of which is underground, and its actual condition beyond ascertainment, and who can arrive at the value of the services to the public? It has never yet been attempted and probably never will be. The only way in which a proper basis can be arrived at is to take the reasonable cost of the plant, which can be easily ascertained. If the construction has been extravagant, or unnecessarily expensive, the actual cost should not be allowed for, as is said in the last case cited. And this case may reasonably be construed to mean just this. The reasons given for holding that the actual cost, or the outstanding bonds, should not control in all cases, are that 'the property may have cost more than it ought to have cost, and its outstanding bonds

for money borrowed and which went into the plant may be in excess of the real value of the property.' It must be inferred from this that if the property did not cost more than it ought to have cost and the bonds issued were not excessive, the company should have a reasonable return on the cost, sufficient at least to pay the interest on its bonds, and a fair profit to the company in addition, provided the rates necessary to furnish such return would not be unreasonable or oppressive to the public or the consumers taking water from the company."

By starting with original cost, and adding or deducting therefrom appreciation or depreciation, the determination of present value is based upon a certain and stable foundation. By disregarding original cost, the foundation as well as the superstructure is "rested" upon that most unsatisfactory evidence, the testimony "of expert witnesses employed by the parties," and for that reason is uncertain and inconclusive.

At the outset, therefore, we direct our inquiry to the facts proved by the evidence as to the cost to complainant of its properties which are in present use. This information must be sought principally from the books of complainant.

Two expert accountants testified regarding the books and accounts of complainant; Mr. Reynolds, on behalf of complainant, and Mr. Wenzelburger, for defendant. Both submitted detail exhibits of the cost of the properties of complainant, Mr. Reynolds arriving at a figure of \$29,667,641.36 (Exhibit No. 116, p. 5707), as of December 31st, 1904, while Mr. Wenzelburger gave a sum of \$26,925,133.32, as of January 1st, 1904. Included in Mr. Reynolds' figures were certain items eliminated by Mr. Wenzelburger as not relating to

cost of construction and property, and included in the statements of both witnesses were a great number of items covering properties which have never been in use or which have gone out of use. These have been deducted in the following pages with the result that the cost of properties of complainant in use and useful as of January 1st, 1904, according to the respective witnesses, as corrected by the deductions hereinafter made, is:

MR. REYNOLDS:

Total estimate (Exhibit No. 116)	\$29,667,641.36
Deductions:	
Construction in year 1904, as	
per Exhibit No. 113	\$ 505,466.73
Items improperly charged to	
construction accounts	2,246,042.84
Properties not in use	4,645,444.09
	<hr/>
	7,396,953.66
	<hr/>
	\$22,270,687.70

MR. WENZELBURGER:

Total estimate (Exhibit No. 100, page 6)	\$26,925,133.32
Less properties not in use	4,645,444.09
	<hr/>
	\$22,279,689.23

MISSING CASH BOOKS.

It will be noted that the calculations of the two accountants agree very closely, there being only a small difference of \$9,001.53 between them. This difference could probably be reduced or eliminated if it were not for the fact that nine cash books, covering the period

from 1860 to 1889, were missing as enumerated by Mr. Wenzelburger on page 2 of his Exhibit No. 100, which prevented his obtaining details of the \$700,007.35 worth of cash items (p. 216, Exhibit No. 101) covered by those missing books. An attempt was made to supply the deficiency from Mr. Reynolds' exhibits, but this proved to be impossible, as that gentleman in Exhibit No. 113, which covered a portion of the period of the missing cash books gave under the heading of "New Construction" lump sums each year totaling up to \$6,-081,153.16 with absolutely no details as to the accounts charged.

As showing how necessary these missing cash books were for the proper making up of the construction accounts, we quote from Mr. Wenzelburger's Exhibit No. 97, p. 19, as follows:

"The amount of details of permanent improvement and operating expense charges to be obtained from the journals is very meager, the ledgers give simply bare figures by monthly postings under account headings. So from November 26th, 1887, to April 24th, 1889, a period of seventeen months, no details of the company's cash receipts and expenditures are obtainable from the books, save such as are indicated by a few journal entries."

He also stated as follows as to his not being able to obtain access to the Suburban Company's books (Defendants' Exhibit No. 100, pages 3-4):

"I was to take up first the 'Suburban Company's Books,' a set of books that is auxiliary to the Company's General Books and has particular reference to the properties across the bay. They dovetail into the General Books and are really a part and parcel thereof. They purport to be the

books of the 'Suburban Company,' which was incorporated about five years ago for the purpose of making certain purchases of lands, rights, etc., for the benefit of the Spring Valley Water Company. The company is owned by the Spring Valley Water Company; practically all the stock stands in the name of Charles Webb Howard, the President of the Spring Valley Water Company, I understand, and the trustees of the Spring Valley Water Company are the directors of the Suburban Company. The Spring Valley Water Company pays the Suburban Company's bills and gets its income, so as can readily be seen the Suburban Company is one with the Spring Valley Water Company. In view of this I was surprised to be refused access to these books by Assistant Secretary Howard, after consultation with Attorney Kellogg, on the ground that it was a separate corporation and had nothing to do with the Spring Valley Water Company. I had already taken a memorandum of the Trial Balance of the Suburban Company for January, 1904, as a basis to work upon, before I was aware of the objection stated. Mr. Howard later offered to give me any figures I wanted out of the books, but did not wish me to go through them myself, fearing that premature publicity might be detrimental to the company's interest in that it might interfere with their future plans, such as the acquiring of lands, rights, etc. As I was looking particularly for land data at that time I asked for the vouchers from which certain book entries were made. These were readily furnished and as a result I have considerable Suburban Company data herewith."

DETAILS OF COST FIGURES.

The figures given by MR. WENZELBURGER on construction account were:

General Construction Account, from 1862 to	
1880, detailed on pages 1 to 35 of Exhibit	
No. 101	\$ 9,833,361.24

New Construction Account—

From 1880 to 1900, detailed
on pages 44 to 205 of Exhibit
No. 101\$14,060,823.28

For 1901, detailed on pages 34
to 57 of first section of Ex-
hibit No. 99..... 289,103.10

For 1902, detailed on pages 48
to 79 of second section of Ex-
hibit No. 99..... 326,546.85

For 1903, detailed on pages 44
to 77 of third section of Ex-
hibit No. 99..... 345,752.88

(Exhibit No. 101, page 208)..... 15,022,226.11

\$24,855,587.35

Accounts eliminated as given on the follow-
ing pages, totaling (Exhibit No. 100, page

5)\$ 3,209,322.63

(Exhibit No. 100, page 6)..... \$21,646,264.72

Plant accounts not charged to construction
account, but outstanding on books, detailed
on pages 225 to 232 of Exhibit No. 101,

added, totaling 5,278,868.60

(Exhibit No. 100, page 6)..... \$26,925,133.32

In explanation of the deduction by Mr. Wenzel-
burger of \$3,209,322.63, stated by him to be improperly
charged to construction account, we give an extract
from pages 6 and 7 of his Exhibit No. 100, setting forth
his reasons for eliminating these items, as follows:

“The amounts of each item above eliminated from the
Construction Accounts are but a small part of the total
charge for similar expense during the life of the Company—
the other charges having been properly charged off to Profit

and Loss Account (see Profit and Loss Schedules), as should have been done in these cases. This condition shows either very careless bookkeeping, when the charges were made, or a deliberate inflation of the Construction Accounts, and hence false additions to cost of plant. In some instances Stock and Bond Discounts were charged Construction 'per order of the Board' (the Stock Discount charge of \$68,276.25, June 10, 1891, to New Construction Account, for example).

"Besides this definite amount of \$3,209,322.63 erroneously charged to construction, I feel convinced that thousands of dollars of expenses of operating the various parts of the plant, moneys paid for taxes, etc., etc., have crept into the Construction Accounts, and the aggregate of the ledger items which I could not investigate because of missing cash books, \$700,007.35, undoubtedly contains a large amount of similar charges. However, as I cannot be exact and definite from the books, without going further, as to how much such charges are in amount, but only make an estimate, I take no cognizance of them and merely call your attention to the conditions that you may see how conservative my figures are."

Mr. Wenzelburger showed at page 5 of his Exhibit No. 100 that the division of this \$3,209,322.63, as improperly charged to Construction Account, was as to \$2,390,071.36 before the New Constitution and \$819,251.27 after, and this is dealt with in the following section.

Before the New Constitution.

From 1862 to 1880, covering a period of a little less than eighteen years, the expenditure on general construction account was \$9,833,361.24 (Mr. Reynolds, in Exhibit No. 111; Mr. Wenzelburger, in Exhibit No. 101, page 35). From this amount Mr. Reynolds de-

ducted \$982,583.60, covering the following items (Exhibit No. 107) :

General Expenses, 1876 to 1878.....	\$ 372,369.58
Office Expenses	13,819.64
City Engine, 1875 to 1878.....	104,128.62
Salaries, 1876 to 1878.....	161,673.82
Discount on Silver, 1876 to 1878.....	95,404.01
Clay St. Engine, 1876 to 1878.....	21,784.61
City Stables	7,000.00
Taxes, 1862 to 1878.....	239,289.40
	<hr/>
	\$1,015,469.68
Less amount of interest charged operating ex- pense erroneously	32,876.08
	<hr/>
	\$ 982,593.60

which Mr. Reynolds stated on Exhibits Nos. 107 and 111 were legitimately chargeable to operating expenses. The eliminations by Mr. Wenzelburger from this General Construction Account totaled \$2,390,-071.36, covering amounts deducted by Mr. Reynolds, together with other items set out in following pages (Defendants' Exhibit No. 100, page 5).

After the New Constitution.

From 1880 to January, 1904, a period of twenty-four years, the New Construction Account includes the expenditure of \$20,311,406.99, according to Mr. Reynolds, and \$20,301,094.71, as given by Mr. Wenzelburger. The latter found it necessary to eliminate from this New Construction Account only \$819,251.27 as improperly charged thereto (Defendants' Exhibit No. 100, page 5).

The details of the \$3,209,322.63 eliminated by Mr. Wenzelburger from the two construction accounts are as follows:

Coupons on Bonds.....\$886,092.50

We quote from Mr. Wenzelburger, Exhibit No. 100, page 7:

“This is for interest on bonds and has plainly nothing to do with Cost of Plant. All the charges making up this amount appear in General Construction Account, therefore all are previous to 1880. Since that time Bond Coupon charges have gone to Profit and Loss Account as they always should have.”

Commission on Bonds.....\$197,620.00

Discount on Bonds..... 404,251.61

Discount on Stock..... 137,850.14

The first of these items was the aggregate of commissions paid banks, brokers, etc., for selling the complainant's various issues of bonds. The second was the aggregate of the various differences between the par value of its bonds and what the complainant received in cash for them from time to time. (Mr. Wenzelburger, Exhibit No. 100, page 7). The third was made up of differences between the par value of complainant's stock and the actual receipts from the sale of new issues thereof at various times (Mr. Wenzelburger, Exhibit No. 100, page 8). Mr. Wenzelburger stated in regard to the first and second as follows:

"The charges comprising the two items last named, Bond Commission and Bond Discount, have no place at all in the construction expense of the Company. As I said in effect in my former report, such charges are in a class by themselves. A concern doing business with its own cash would have no such expense, and the City is dealing with the Company on the basis of a cash business, not a credit one. The credit of the Company, whether it be good or bad, has nothing to do with construction cost figures on a cash basis, which this is. If the Company has a right to charge a discount of 5%, and the expenses of selling their bonds to construction cost, they have a right to charge 50% and greater expense if financial conditions are such as to make it necessary in order to get money; or even more, and thus the proposition is reduced to an absurdity." (Exhibit No. 100, pages 7-8.)

Expense on Bonds.....\$ 9,000.00

Mr. Wenzelburger, in Exhibit No. 100, at page 8, said:

"This amount is a balance still outstanding on the Company's books under this head and is expense attending the latest issue of bonds, printing, etc. The Company has not yet charged this to Construction, but it is right in line for that disposition as a portion of the same expense in the same account was charged Construction in 1903. The amount is inserted in my Cost of Plant total to make the schedule complete as to Bond Expense and the elimination of it here is merely an offset."

Discount on Silver.....\$ 95,404.01

As previously stated, this item was deducted by Mr. Reynolds on his Exhibit No. 107, and therein he concurs with Mr. Wenzelburger.

Interest\$301,189.90

Mr. Wenzelburger, in Exhibit No. 100, at page 9, said:

"This amount is made up, for the most part, of amounts paid for interest on money borrowed on the Company's notes, secured by collaterals. It is all charged to General Construction Account prior to 1880. The great bulk of the interest expenditure of the Company has been charged to Profit and Loss Account, as should have been done with this amount."

Taxes\$126,102.01

As previously stated, Mr. Reynolds deducted a sum of \$239,289.40 for Taxes on Exhibit No. 107, which is a higher amount than that claimed by Mr. Wenzelburger.

Franchises\$180,000.00
Charter 2,000.00

The nature of these items shows that they are not properly a part of the construction cost of complainant's properties.

Damages, Beard Case.....\$ 5,175.00

Mr. Reynolds testified in regard to the elimination of this item (p. 5794):

"The Beard case, which Mr. Wenzelburger mentioned, the Cluff case which he also mentioned; all of which were charged with the exception of \$5,175.00, in the Beard case to Profit and Loss."

Damages in other cases having been charged to Profit and Loss, there seems no reason why this should not have been also.

Operating San Pedro Engine and Pump.. \$7,540.30
Putting in order and setting Meters..... 70,154.52

As the titles of the accounts imply, these are operating expenses. In Exhibit No. 133, covering properties not in use, Mr. Reynolds makes allowances for San Pedro engine and meters. That allowance for San Pedro, together with item above, is slightly less than total amount in Mr. Wenzelburger's Exhibit No. 101, at pages 40 and 43.

Contingent Expenses \$414,573.06

Mr. Wenzelburger makes the following statement:

"This amount is made up of Interest, Taxes, Coupons, Legal Expenses and similar outlay, and is charged to General Construction Account under the head of 'Contingent Expenses,' all prior to 1880, since which time such charges have been charged to Profit and Loss, as should have been done with these" (Exhibit No. 100, page 10).

General Expenses \$372,369.58

As previously stated, Mr. Reynolds deducted this item on Exhibit No. 107, and therein he and Mr. Wenzelburger agree.

Total Eliminations by Mr. Wenzel-	
burger	\$3,209,322.63

On the cost of the properties of complainant, MR. REYNOLDS gave the following figures:

Complainant's Exhibit No. 109 (p. 5334)—

Construction Account up to consolidation of
the San Francisco City Water Works with
the Spring Valley Water Works in June,
1865 (included in total of Exhibit No. 111). \$ 3,355,032.54

Complainant's Exhibit No. 111 (p. 5363)—

General Construction Account, from June,
1865, to June, 1878 (includes the balance
at June, 1865)..... 8,850,767.64

Complainant's Exhibit No. 113 (p. 5668)—

New Construction Account, from June,
1878, to December 31st, 1904..... 18,489,253.73

Complainant's Exhibit No. 116 (p. 5707)—

Property and Construction Accounts..... 29,667,641.36

Complainant's Exhibit No. 116 claims to be the final balance of the books of complainant as of December 31, 1904, and Mr. Reynolds gave on that exhibit the following balance sheet as showing the cost of the works and the investment position as of that date:

Dr.		Cr.	
Assets being Property and Construction Ac- counts	\$29,667,641.36	Liabilities to Stock- holders	\$13,390,335.26
Cash Assets as de- tailed	14,483.76	Liabilities to Outsiders:	
		Bonds	15,475,000.00
		Other Outsiders	689,737.09
		Balance of Profit and	
		Loss	127,052.77
	<hr/> \$29,682,125.12 <hr/>		<hr/> \$29,682,125.12 <hr/>

This total of \$29,667,641.36, which Mr. Reynolds represented as the cost of the property and construction accounts as of December 31st, 1904, includes certain items for coupon interest on bonds, discount on

stock and bonds, commission and expense on bonds, interest, etc., none of which relate to the cost of construction or property and should have been charged against the receipts from the water sales.

In order to place Mr. Reynolds, whose calculation runs up to December 31st, 1904, on the same basis as Mr. Wenzelburger, it will be necessary to deduct the construction account for 1904, as Mr. Wenzelburger's statement applies up to January 1st, 1904; and that is the average date between the two years to which the testimony in these cases applies under the stipulation.

The following gives in detail the amounts which should be deducted from Mr. Reynolds' total as above set forth:

Total gross cost according to Mr. Reynolds in Exhibit No. 116.....	\$29,667,641.36
Less: Construction Account for 1904, as itemized by Mr. Reynolds on Exhibit No. 113..	505,466.73
	<hr/>
	\$29,162,174.63

As already shown, Mr. Reynolds deducted \$982,593.60, covering certain accounts properly chargeable to operating expenses, which were eliminated by Mr. Wenzelburger. At pages 98 to 101 of this brief are given list of eliminations by Mr. Wenzelburger and in accordance with reasons set out therein, we deduct the following items given in Mr. Reynolds' exhibits on General Construction Account from his total:

Forward	\$29,162,174.63
Coupons on Bonds (Complainant's Exhibit No. 111)	\$886,092.50
Discount on Bonds (Complainant's Exhibit No. 111)	4,800.00
Interest on Floating Debt— (Exhibit No. 111...\$301,189.90) (Exhibit No. 107... 32,876.08)	
	<hr/> 334,065.98
Contingent Expenses— (Exhibit No. 111...\$307,829.88) (Exhibit No. 109... 106,898.33)	
	<hr/> 414,728.21
Charter (Complainant's Exhibit No. 109)	92,000.00
	<hr/> \$ 1,731,686.69
	<hr/> \$27,430,487.94

The items to be deducted from the New Construction Account, as given by Mr. Reynolds on Complainant's Exhibits Nos. 113 and 116, total \$514,356.15, as follows:

Discount, Commission and Expense on Bonds (Exhibit No. 113)...	\$363,428.11
Discount on Stock (Exhibit No. 113)	137,850.14
Bond Expenses (Exhibit No. 116).	13,077.90
	<hr/> \$ 514,356.15
	<hr/> \$26,916,131.79

PROPERTIES NOT IN USE.

Deductions Admitted by Mr. Reynolds.

As previously stated, a great number of items are included in the figures of both witnesses covering prop-

erties which have never been in use, or which have gone out of use. Mr. Dockweiler, at pages 644-7 of his testimony, gave a list of properties not in use totaling up at cost prices to \$4,044,670.61. Mr. Reynolds submitted Exhibit No. 133 (p. 5854), based on Mr. Dockweiler's list of properties not in use and in this exhibit admitted the following properties as out of use, amounting to \$1,785,746.35 (p. 5858) :

Reference No.	Properties.	No of years out of use.	Admitted out of use at
1	Alms House Reservoir Site.....	11	\$ 63,300.00
2	California Agricultural Association (Clear Lake)	25	243,341.61
3	Manzanita Water Company (Portola) ..	15	24,421.03
4	San Francisquito Lands and Improve- ments	26	23,193.07
5	Searsville Tunnel	15	89,865.13
6	Searsville Dam	13	121,672.24
7	Searsville Improvements	15	32,303.09
8	Searsville Lands	19	53,958.25
9	Pescadero Improvements	18	35,837.01
10	Pilarcitos Artesian Wells	35	6,381.48
11	Purissima Lands	19	17,940.00
12	San Gregorio	32	2,650.00
13	Sausalito Water Works.....	34	12,069.07
14	Buchanan Street Reservoir.....	25	133,343.88
15	Brannan Street Reservoir	31	8,936.92
16	Islais Flume	31	15,190.57
17	Lobos Creek and Flume	34	31,259.14
18	Lobos Creek Artesian Wells.....	36	634.90
19	Lobos Creek Pump.....	3	23,469.00
20	Lobos Creek Lots.....	3	2,500.00
21	Locks Creek Line (part of).....	12	197,809.00
22	Lafayette Park Pump.....	22	4,255.77
Forward			\$1,144,331.16

	Forward	\$1,144,331.16
23	Ringold Street Pump..... 24	8,115.15
24	San Andreas Pipe Line (part)..... 7	79,000.00
25	Wells at Headwaters..... 40	6,451.58
26	Wells at Warren and Tuttle..... 21	11,760.03
27	Wells, Sundry 30	3,675.68
28	San Pedro Pumps and Works..... 39	26,842.30
29	Pilarcitos Flume 37	187,918.00
30	Stone Inlet Tower and Culvert through Pilarcitos Dam 38	8,400.00
31	Lake Merced Old Pumps..... 24	156,318.00
32	Crystal Springs Old Pumping Station.. 21	79,804.00
33	Thomasson Lot, Ashbury Heights..... 10	350.00
34	Lake Merced Coal Yard Lot..... 6	1,600.00
35	City Engine 23	8,387.18
36	Meters 15	62,793.27
		<hr/>
		\$1,785,746.35

A comparison of Mr. Dockweiler's list of properties not in use (pp. 644-7) with Mr. Reynolds' Exhibit No. 133, shows that the following items on Mr. Dockweiler's list, numbered as above, were admitted as out of use and allowed in their entirety by Mr. Reynolds: Nos. 1 to 11 (both numbers inclusive), 14, 15, 16, 18, 19, 20, 23, 25 to 28 (both numbers inclusive), 30, 31 and 34.

Mr. Reynolds also made the following deduction in his testimony at page 5858:

"Suburban Properties, ten parcels of land and improvements".....	737,879.36
(p. 5858)	<hr/>
	\$2,523,625.71

which is the amount Mr. Reynolds, himself, deducted for properties not in use.

TRUSTEE LANDS.

Forward

\$2,523,625.71

There is nothing in Mr. Reynolds' testimony to show how the above figure of \$737,879.36 was arrived at, but it undoubtedly represents lands held by trustees, the cost of which Mr. Dockweiler stated that he was unable to ascertain (p. 645):

"XQ. 195. That is, you have not included any lands at all that are in the names of trustees—undisclosed properties?

"A. No, sir."

At various points in the cross-examination of Messrs. Schussler and Brooks, attempts were made to ascertain the cost price of lands held by trustees, but the testimony shows that those witnesses were instructed by counsel not to disclose this data (pp. 1823-6, 3107-9).

The following admissions, however, were made by Mr. Schussler as to the extent of these trustee lands:

Stretch of several miles in San Mateo County (p. 1829),

11,300 acres of land on Coyote Creek (p. 1830),

Extensive tracts of land on the Niles Delta (p. 1924),

Lands in Alameda County (pp. 2014, 2016).

Mr. Brooks stated the following in regard to lands held by Trustees:

Ravenswood Property,—

Details of purchase from 1902 to 1904 at a total cost of \$59,718.60 (pp. 3144-5).

Forward

\$2,523,625.71

	Forward	\$2,523,625.71
Lands in Alameda County,—		
Several lots bought in 1899 and 1901, totaling \$78,288.45.		
Lands in Santa Clara County,—		
Details at pages 3335-7, lands purchased from 1899 to 1903, totaling \$142,457.85.		
Lands in San Benito County,—		
Bought in July, 1899, and cost \$74,000 (p. 3130).		
Ditch Right in Yolo County,—		
At the head of the Capay Valley (p. 3109).		

The foregoing admissions by Messrs. Schussler and Brooks show considerable acreage held by Trustees, which undoubtedly are the lands covered by Mr. Reynolds in his figure of \$737,879.36.

FURTHER DEDUCTIONS FOR PROPERTIES NOT IN USE.

In addition to the foregoing list of properties admitted by Mr. Reynolds as out of use, we submit list of other properties which we claim are not in use: first, those items in Mr. Dockweiler's statement which were either allowed in part or disputed by Mr. Reynolds; and second, properties stated by Mr. Schussler and other witnesses as out of use. After this list, we will deal with each item in detail with proof of our right to claim allowance of the amounts enumerated.

Forward	\$2,523,625.71
---------	----------------

Forward, \$2,523,625.71

MR. DOCKWEILER'S ITEMS, ALLOWED IN
PART BY MR. REYNOLDS. (Balances
not allowed in each case).

No.12	San Gregorio	4,500.00
13	Sausalito Water Works.....	3,450.00
17	Lobos Creek and Flume.....	5,600.00
21	Locks Creek Line (part of) ..	25,000.00
22	Lafayette Park Pump.....	4,750.00
29	Pilarcitos Flume	61,893.48
32	Crystal Springs Old Pumping Station	26,000.00
33	Thomasson Lot, Ashbury Heights	1,200.00
36	Meters	56,738.35

MR. DOCKWEILER'S ITEMS DISPUTED BY
MR. REYNOLDS.

No.37	Potter charges for wells, boil- ers, etc.	10,399.85 (p. 645)
38	Old Office Building and Lot (net cost)	10,142.90 (p. 646)
39	Branch Flume at Pilarcitos Dam, \$9,760.06. Also, in addition to Mr. Dockweil- er's item, \$13,629.78 for the Pilarcitos Side Flume, to- taling	23,389.84
40	San Francisco City Water Works	1,398,120.00 (p. 646)
41	Telegraph; cost of lines to Lake Honda, San Andreas and Pilarcitos in 1868.....	4,459.04 (p. 646)
42	Crystal Springs Upper Dam, proportional cost of dam not useful	180,827.63 (p. 646)
43	Ocean View Pumps.....	25,349.24 (p. 647)
44	Upper Pilarcitos Dam.....	31,376.40 (p. 647)
45	Calaveras Dam; explorations and surveys	44,446.46 (p. 644)
46	San Antonio Improvements...	4,305.47 (p. 644)

Forward, \$4,445,574.37

Forward, \$4,445,574.37

MR. SCHUSSLER ADMITTED OUT OF USE.

No.47. Portion of Concrete Dam, Colma Gulch Drainage System, Lake Merced.....	25,000.00 (p. 1231)
48 Lake Honda Dividing Wall (portion of)	10,000.00 (p. 2996)
49 Crystal Springs Dairy Land..	25,000.00

OTHER ITEMS.

No.50 Stevens Creek Lands.....	4,169.50 (p. 3124)
51 Arroyo Valley Lands (4,421.8 acres)	64,287.47
52 Small dam at Pilarcitos.....	1,152.75

\$4,575,184.09

On all of the above items we have been able to supply from the record data in support of our claim.

One other item in Mr. Dockweiler's list, namely,

30-inch sheet iron pipe, Lake Honda to Market Street Reservoir.....	70,260.00 (p. 646)
---	--------------------

cannot be substantiated from the record, as there are no cost figures on same. Had Mr. Dockweiler been cross-examined, he undoubtedly could have supplied data, and we add this amount on to the end of our list.

Total\$4,645,444.09

To arrive at the figures of Messrs. Reynolds and Wenzelburger on the cost of property in use and useful as of January 1, 1904, we deduct from their total cost figures above amount of \$4,645,444.09, for properties not in use, as heretofore shown.

It is to be noted that the allowance Mr. Schussler

makes of \$4,500,000 for properties not in use (p. 1586) is remarkably close to the total arrived at by us as above, namely, \$4,645,444.09. The comparison ends there, however, as while our figure includes all the properties not in use (some *fifty-two* structures and properties in all), Mr. Schussler's estimate covers only (pp. 1585-6):

4,440 acres in the Arroyo Valle,
1,500 acres in the Locks Creek Region,
Industrial School Reservoir Tract,
(Alms House Reservoir Tract),
Market Street Reservoir Tract.

It is quite true, of course, that a number of properties were not included by Mr. Schussler in his estimates, but there is a large margin between the FIFTY-TWO items in our list and the FOUR items in Mr. Schussler's.

EXTRA WIDTH OF CRYSTAL SPRINGS DAM.

Mr. Schussler stated that the present height of the Crystal Springs Dam is 145 feet, but that it was constructed for the purpose of carrying an ultimate height of 175 feet (p. 2203). He admitted that the base was much larger than was necessary for present purposes:

"XQ. 2897. Then, it is admitted between us, is it, that that base is a great deal larger than is necessary for the present height of the dam?

"A. Why, certainly; it is not intended for the present height of the dam. It is intended for a much greater height. As I said, it was planned originally for an additional height of 30 feet, and I believe I can see my way clear with safety to eventually have that dam raised to 53 feet instead of 30 feet. That is probably owing to the fact that the dam

and the method of building it and the character of the materials used and the workmanship has been a marvelous success and has become stronger and stronger as the years go on" (p. 2206).

The cost of this dam beyond what was necessary for present purposes may be a wise provision for the future, but it can not be considered as property now in use. Mr. Dockweiler introduced three exhibits (Nos. 88, 89 and 90; pp. 588-91), which show the comparative sectional areas of the Crystal Springs Dam, both at its present height and its proposed additional height, with similar heights of other well known dams. On Exhibit No. 88 are given comparisons for similar heights with dams built prior to or at about the time of the construction of the Crystal Springs Dam (1888), as follows:

Name of Dam.	Year Built.	Excess of Area of Crystal Springs Over Other
		Dams.
Furens	1866	83%
Poona	1868	110%
Ban	1870	96%
Hamiz	1885	121%
Sweetwater	1888	186%

It is noticeable that the area of the Crystal Springs Dam exceeds that of the Sweetwater Dam (built at about the same time, and upon which Mr. Schuyler acted as consulting engineer during the latter part of the construction) by nearly three times.

Exhibit No. 90 also gives a comparison with the new Croton Dam near the City of New York, showing that the area of the Crystal Springs Dam exceeds

that dam by 84%; and finally a comparison is made with a proposed type of dam known as the "Wegmann Type," showing an excess of area for the Crystal Springs Dam of 109%; or in other words the area of the complainant's dam is more than double that of the proposed type. These comparisons are graphically set forth on the three exhibits above referred to; Exhibit No. 90 showing the relative areas superimposed upon one another.

The combined engineering skill and experience used in the construction of all these dams can certainly be relied upon to show what would have been a reasonable size for this Crystal Springs Dam at its present height. From these comparisons it appears that the area of this dam exceeds what was usual or necessary by amounts ranging from 83% to 186%. The average is 119%; but an arbitrary excess of 100% is assumed as a conservative estimate, or, in other words, the area of the complainant's dam is twice as large as experience with other similar structures shows that it is required to have been.

The books of complainant do not disclose the cost of the dam itself as separated from the lands or other parts of the system. We are, therefore, compelled to resort to the estimates of present value of the structure as given by the different witnesses, which were as follows (see Table No. 13, Crystal Springs System):

Mr. Schussler.....	\$2,192,000 (p. 1004)
Mr. Adams	1,802,622 (p. 5136)
Mr. Schuyler	1,873,516 (p. 5549)
Mr. Grunsky	1,660,000 (M. R. p. 805)

These figures possibly include some appurtenances which can not be segregated. But allowing for all such items and assuming that the dam itself is twice as large as it needs to be for present purposes, it is evident that the portion of this structure which is not presently useful represents a sum of at least \$500,000. This amount is not carried into our computations of the cost of properties not in use for the reason that no witness included it in his list. There seems to be no good reason, however, why the rate payers should be taxed to provide an income upon this extravagant construction, which would not apply to all properties which the judgment of the complainant's engineer has provided for future use. In this connection we are not unmindful of the statements of Mr. Schuyler that an engineer should be allowed some latitude in a matter of this kind, and of other witnesses that the dam is no larger than necessary when raised to its proposed final height. It is submitted, however, that the comparisons shown by Mr. Dockweiler's exhibits furnish the best evidence of what is presently useful, and that is all that can be considered in establishing value for rate fixing purposes.

While this deduction has not been carried into the foregoing computations, it is here referred to in order to show the conservative character of the deductions which have been made.

PROPERTIES NOT IN USE PARTLY ALLOWED BY MR.
REYNOLDS.

In the following pages we submit proof, item by item, of our right to include all the structures and properties mentioned in the foregoing list of properties not in use at the figures given.

No. 12, San Gregorio.

Mr. Reynolds testified (p. 5855) :

"The City exhibit over-charges San Gregorio, \$4,500. I cannot find any such charge for San Gregorio at all. They charge it as \$7,150; I say \$2,650."

As shown in list from Exhibit No. 133, Mr. Reynolds allowed \$2,650, which was given by him on Exhibit No. 116 (10th item on Dr. side). The other \$4,500, which he expressed himself as unable to find, was given by him in Exhibit No. 109, on the Dr. side, under ledger page 235, 16th item, as "Water rights, San Gregorio, \$4,500."

In Mr. Wenzelburger's Exhibit No. 101, this item of \$4,500 appears in the details of "General Construction Account," under date of June 23d, 1863.

We, therefore, reinstate amount disputed by Mr. Reynolds of \$4,500.

Mr. Schussler's testimony quoted as follows shows that these water rights are not in use (pp. 1791-2) :

"XQ. 1061. What lands or water rights does the Company own on San Gregorio Creek?

"A. I do not think they own any land, but they do own some water rights on the lower portion of the stream.

"XQ. 1062. Does the Company draw any water from there to San Francisco?

"A. No, sir, they do not.

"XQ. 1063. Did it ever do so?

"A. No, sir."

No. 13, Sausalito Water Works.

Mr. Dockweiler's item for this was \$15,519.07 (p. 644). Mr. Reynolds allowed in foregoing list from exhibit No. 133 \$12,069.07, testifying on page 5855: "The city fails to credit the Sausalito lots, which were "sold in May to October, 1904, for \$3,450, in their "calculations."

This statement of cost of complainant's property being up to January 1st, 1904, the sales mentioned by Mr. Reynolds during 1904 would be of a later period, and the amount of \$3,450 is accordingly replaced.

No. 17, Lobos Creek and Flume.

Mr. Dockweiler's item was \$36,859.14 (p. 645). Mr. Reynolds allowed in foregoing list from Exhibit No. 133, \$31,259.14, and testified (p. 5855): "The "City Exhibit overcharges Lobos Creek and Flume " \$5,600. I can not find any figures that will reach to "that amount of money; I think there is some mistake "regarding that."

Messrs. Reynolds and Wenzelburger agree in respect to the items included in this structure so far as the General Construction Account up to 1880 goes, the amount given by each witness being \$31,259.14, the amount allowed by Mr. Reynolds. Mr. Wenzelburger,

in his New Construction Account under date of June 30, 1886 (Exhibit No. 101, page 61), gives this item: "Lobos Flume, \$5,600," which is the amount disputed by Mr. Reynolds.

Without question this amount, like many others, is included by Mr. Reynolds in his lump sums each year under the heading of "New Construction"; his figure for 1886 in that column being \$239,367.45 (Exhibit No. 113), with no details whatever as to how this amount is made up. There is no dispute that this entire property is out of use. We, therefore, claim that this \$5,600 should be allowed.

No. 21, Locks Creek Line (part of).

Mr. Dockweiler fixed this at \$222,809 (p. 645). Mr. Reynolds admitted in Exhibit No. 133 that \$197,809 was out of use, and claimed that the balance of \$25,000 was in use.

The following figures on the cost of this line are given by Mr. Reynolds:

Locks Creek Line.....	\$303,251.71
Less credit	2,287.50

(Complainant's Exhibit No. 111)	\$300,964.21
Locks Creek Tunnel (Exhibit No. 111).....	42,190.38
New Locks Creek Pipe Line (Exhibit No. 113) ..	206,153.95
	<hr/>
	\$549,308.54

Mr. Wenzelburger has the following items (Defendants' Exhibit No. 101, page 228) :

Locks Creek Tunnel.....	\$ 42,190.38
Locks Creek Line.....	300,964.21
Locks Creek New Line.....	198,736.71
Locks Creek Flume.....	1,078.35
	<hr/>
	\$542,969.65

Mr. Schussler, in his cross-examination, gave a description of the Locks Creek Line, and being asked how much of it had gone out of use, replied (p. 1746) :

"In the first place, the Pilarcitos Stone Dam is in use to-day. The flume from Pilarcitos Stone Dam to Tunnel No. 1 of the Locks Creek Line has been rebuilt after about 32 or 33 years, and has been somewhat enlarged. Then the tunnel proper is in use the same as it was originally constructed. All of the rest of the work has gone out of use."

The estimates in this suit on the portion of the Locks Creek line now in use were as follows:

Mr. Dockweiler	\$320,160.00 (p. 647)
Mr. Grunsky (report to Board of Public Works (1/26/04).....	329,861.00 (p. 185)
Mr. Schuyler	332,845.00 (p. 5448)
Mr. Adams	300,192.00 (p. 4737)
Mr. Schussler (estimate of Feb., 1904)	376,700.00 (p. 2498)
Mr. Schussler (in this suit).....	419,000.00 (p. 1048)

Deducting Mr. Dockweiler's estimate of \$320,160 from the total charges as given by Mr. Wenzelburger of \$542,969.65, we have a balance of \$222,809.65, which is (minus the 65 cents) the figure given by Mr. Dockweiler for the property gone out of use (p. 645).

With the exception of Mr. Schussler, all the estimates on the portion of this property now in use are very close and this justifies the using of Mr. Dockweiler's estimate, which it will be noted is higher than Mr. Adams'.

We claim that we are entitled to deduct the whole amount of \$222,809, and therefore to include the balance disputed by Mr. Reynolds of \$25,000.

No. 22, Lafayette Park Pump.

Mr. Dockweiler's figure was \$12,005.77 (p. 645) against which Mr. Reynolds allowed in Exhibit No. 133, \$4,255.77, testifying (p. 5856): "The city fails "to credit sale of Lafayette Park Lots in May, 1904, "\$4,750." As previously stated, the basis of calculation for the cost of complainant's property is up to January 1st, 1904; the sale having been made at a later date, this amount of \$4,750 should be reccredited.

No. 29, Pilarcitos Flume.

Mr. Dockweiler's item was \$249,918 (p. 646), of which Mr. Reynolds admitted, as previously given in list from Exhibit No. 133, that \$187,918 was out of use, claiming the balance of \$62,000 as being in use.

Mr. Reynolds' figures are:

Exhibit No. 109, up to consolidation in 1865—	
Pilarcitos Pipe, Flume, Dam.....	\$376,588.59
Main Dam	63,548.98
Tunnels 1, 2, and 3.....	10,733.83
Exhibit No. 111—	
Pilarcitos Flume	7,225.25

458,096.65

It will be noted that Mr. Reynolds does not give any separate figures as to the expenditure on the flume and pipe line on Exhibit No. 109, but as his total of the General Construction Account is identical with that of Mr. Wenzelburger, we have recourse to Mr. Wenzelburger's Exhibit No. 101 (pp. 5-14) to supply the deficiency and this shows that the expenditure on works outside of the flume and pipe line up to 1865 was:

Main Dam	\$75,719.93
Upper Dam	31,376.40
Other work at Pilarcitos.....	63,156.52
	<hr/>
	\$170,252.85
	<hr/>
Leaving a balance of.....	\$287,843.80

This figure represents cost of flume and pipe line according to Mr. Reynolds, which agrees very closely with the total of \$288,915.48, which we arrive at by abstracting from Mr. Wenzelburger's Exhibit No. 101, the items relating to the flume and pipe line as follows:

June 14th, 1862.

"Flume Pilarcitos. Cost of flume to date; this amount includes cost of:	
9,776' C. I. 16" pipe, say.....	\$39,104.00
6,583' S. I. Pipe.....	14,000.00
Lumber and all other interests, labor, etc. (p. 1)	\$199,727.70"
Credit overcharge for lead (p. 2).....	3,500.00
	<hr/>

Forward, \$196,227.70

	Forward, \$196,227.70	
June 14th, 1862.		
"Tunnel No. 3, San Andreas Valley, expenses building tunnel (p. 1)....."	853.00"	
June 14th, 1862.		
Tunnel No. 2, San Andreas Valley, expenses building tunnel (p. 1)....."	1,588.32	
June 20th, 1863.		
"Flume Pilarcitos. Expenses on flume from Pilarcitos to Lake Honda (p. 4)....."	53,849.69"	
June 20th, 1863.		
"Labor Pilarcitos Section. Men employed in grade on Pilarcitos Creek at different points along the work (p. 4)....."	5,444.87"	
December 24th, 1863.		
"Flume Pilarcitos. Expense caulking and re- pairing flume (p. 6)....."	867.46"	
December 24th, 1863.		
"Expense repairing flume and trestle work blown down by gale....."	3,283.12	
Lumber (p. 6)....."	644.00"	
June 8th, 1864.		
"Flume Pilarcitos. Expenditures on this work since December 24th, 1863, improve- ments and repairs (p. 7)....."	2,391.48"	
December 31st, 1864.		
"Sheet Iron Pipe. Expended on Sheet Iron Pipe laid in San Andreas Valley to replace trestle work, now transferred (p. 9)....."	8,927.20"	
December 31st, 1864.		
"Flume Pilarcitos. Expended on this work now transferred (p. 9)....."	984.43"	
January 1st, 1865.		
"Flume Pilarcitos. Repairs on this work (p. 13)"	133.20"	
	Forward, \$275,194.47	

Forward, \$275,194.47

June 1st, 1866.

"Flume Pilarcitos. Repairs (p. 15; also on Mr. Reynolds' Exhibit No. 111).....	786.03"
--	---------

June 1st, 1867.

"Flume Pilarcitos. Expended on this work (p. 17: also on Mr. Reynolds' Exhibit No. 111)	2,453.63"
---	-----------

June 1st, 1867.

"Sheet Iron Pipe. Cost of pipe and laying same in Tunnel No. 1 (p. 18).....	6,495.76"
---	-----------

June 1st, 1868.

"Pilarcitos Flume. Expended (p. 19: also on Mr. Reynolds' Exhibit No. 111).....	3,706.62"
---	-----------

June 1st, 1869.

"Flume Pilarcitos. Expended this year (p. 21)	278.97"
---	---------

 \$288,915.48

In regard to Mr. Reynolds' claim that a portion of the flume and pipe line was in use representing \$62,000, the following is quoted from his testimony, showing that he arrived at this figure on the basis of Mr. Schussler's estimate of reduplication value in this suit (pp. 5860-1):

"MR. PARTRIDGE—XQ. 87. In regard to the Pilarcitos flume you say that \$62,000 of it is in use: what portion of that is still in use?

"A. I cannot give you the physical portion.

"XQ. 88. Do you know how you get the figure of \$62,000?

"A. Yes, from Mr. Schussler.

"XQ. 89. His estimate of the value of it?

"A. Yes, sir.

"XQ. 90. He did not give any estimate of the cost of it, did he?

"A. No, I think not. I cannot remember that he did.

"XQ. 91. And the same would be true of the Pilarcitos branch flume?

"A. Yes. Mr. Schussler claims it is in use.

"XQ. 92. But the figure he gives is his estimate of the cost of constructing it in the years 1902 and 1903; it does not pretend to be an estimate of the actual cost.

"MR. KELLOGG—I admit that, Mr. Partridge. This is taken from his testimony upon the very basis upon which he gives it.

"MR. PARTRIDGE—XQ. 93. These figures that are put in your column entitled 'Spring Valley claims in use' are the figures taken from Mr. Schussler's testimony?

"A. Yes, sir.

"XQ. 94. All of them?

"A. I will not say all of them, because I have not gone as thoroughly into Mr. Schussler's testimony as I perhaps ought to have done in order to do that. I asked him to give me an extract of his testimony and that is the result of his extract.

"XQ. 95. But you have no figures of the cost of the properties that are in use, except what you got from Mr. Schussler?

"A. No, sir."

Mr. Schussler, in cross-examination, admitted that this flume and pipe line, which consisted of pipe, flume and tunnel, had gone out of use (pp. 1685-93), and in conclusion testified as follows:

"XQ. 578. Your impression is, Mr. Schussler, that this original Pilarcitos conduit went out of use at the time of the building of the present 30-inch pipe line?

"A. No, sir, not at the time, but afterwards.

"XQ. 579. About how long afterwards?

"A. That I could not tell; within a year, I think.

"XQ. 580. Within a year?

"A. Excuse me a moment; for instance, at the time that tunnel No. 2 was being built through the hill in San Mateo County the flume around what we call Cape Horn was still in use; so evidently it did not all go out of use at once, it went out of use little by little; for instance, the first portion

of the pipe line, of the Pilarcitos line, that was laid—the 30-inch new line—was the piece replacing the Colma section, that is, crossing through the Colma Valley and leading to the county line. That is what we used to call the new school-house pipe. When that 30-inch pipe had been laid and was in use there was then still a large portion of the old flume in use conducting the water to this so-called new school-house pipe line—the 30-inch line—and gradually as the various sections of the 30 inch pipe were added on and laid this old conduit went out of use piece by piece.

“XQ. 581. You are under the impression, then, that within a year after the construction of the present Pilarcitos pipe line that old conduit went out of use?”

“A. Yes. After the Pilarcitos pipe line was entirely finished, within a year after that, I believe, it was all practically out of use” (pp. 1693-4).

Mr. Schussler, in the foregoing, stated that the whole flume and pipe line had gone out of use, but at page 1688 he testified that the cast iron pipe was taken up, cleaned and relaid in the City Distributing System. The cost of the cast iron pipe shown previously by extract from Mr. Wenzelburger's detailed statements from the books (Exhibit No. 101, p. 1) was \$39,104. Deducting this amount from Mr. Wenzelburger's total of \$288,915.48, we have the cost of the property out of use as \$249,811.48, as compared with Mr. Dockweiler's figure of \$249,918.

We maintain that \$249,811.48 represents the cost of the Pilarcitos Flume and Pipe Line out of use, and deducting the amount of \$187,918 admitted by Mr. Reynolds as out of use, we have a balance of \$61,893.48, which we have charged in our list.

No. 32, Crystal Springs old Pumping Station.

Mr. Dockweiler gave the cost at \$105,804 (p. 646), while Mr. Reynolds admitted \$79,804 as out of use (extract from Complainant's Exhibit No. 133, given previously).

Mr. Schussler testified that this property had gone out of use as follows (p. 1713) :

"During the year 1877 the first Crystal Springs Pump was constructed, as was also the first Lake Merced Pump; both of these pumping plants are now out of use, the Crystal Springs Pump having been moved to the Ocean View Pumping Station, and the force pipe having been scattered over the works and used in various parts of the works."

We, therefore, reinstate the difference of \$26,000 disputed by Mr. Reynolds.

No. 33, Thomasson Lot, Ashbury Heights Pump.

Mr. Dockweiler put this at \$1,550.00, in connection with which Mr. Reynolds testified (p. 5856) :

"The City fails to credit the sale of the Thomasson Lot, July, 1904, \$1,200."

The sale having been made in 1904, it is not subject to deduction from this statement, which is up to January 1st, 1904, and consequently we charge back this item disputed by Mr. Reynolds, \$1,200.00.

No. 36, Meters.

Mr. Wenzelburger gave a cost figure of \$400,293.27 for meters (Exhibit No. 101, p. 225) in addition to the \$70,154.52 for setting and putting in order meters, which he eliminated as shown at page 101 of this brief.

Mr. Reynolds cannot be compared on this point for the reason that, while his figures in the General Construction Account agree very closely with Mr. Wenzelburger, in the New Construction Account he gives no figure for meters and evidently includes it in the lump sum "New Construction" totals mentioned previously.

On Exhibit No. 133, Mr. Reynolds admitted meters out of use at \$62,793.27, and stated those in use as worth \$187,500. Mr. Schussler valued the meters in use at \$150,000 (p. 1503).

Deducting from Mr. Wenzelburger's cost
figure of\$400,293.27
the following items:

Mr. Schussler's estimate for
meters in use.....\$150,000.00

Credit by Mr. Reynolds on
Exhibit No. 113 from New
Construction Account, read-
ing "Meters \$130,761.55,"
which is therefore a reduc-
tion of the capital charge
against this item..... 130,761.55

Amount admitted on Exhibit
No. 133 by Mr. Reynolds
for meters out of use..... 62,793.27

\$343,554.82

We have a balance of.....\$ 56,738.45
remaining over to be charged in respect to meters gone
out of use.

PROPERTIES CLAIMED TO BE NOT IN USE AND DISPUTED
BY MR. REYNOLDS.

No. 37, "*Potter charges for wells, boilers, etc., \$10,-399.85.*"

Mr. Dockweiler gave the above item in his list of properties, which have gone out of use (p. 645), and the wording thereof is sufficiently plain to show the nature of the expenditure, but Mr. Reynolds confuses it with other payments which were made to Mr. Potter for lands in the University Mound Reservoir, as the following extract from his testimony shows (p. 5859):

"XQ. 80. How about Potter charges for wells, boilers, etc?"

"A. There were two several lots of money paid to Mr. Potter; one went for the University Mound Reservoir, amounting to some \$10,000, and that is in use.

"XQ. 81. That \$10,399.85 was the entire amount that was paid for the wells and boilers, etc.; in other words it was paid for the water producing system that Mr. Potter owned, was it not?"

"A. No. He bought it from outside parties. The company had him buy it.

"XQ. 82. The entire amount that was paid to the persons who were using that as a system of running water was \$10,399.85?"

"A. For University Mound, I think, yes, sir.

"XQ. 83. Is it not a fact that that is what was paid for his wells and his entire system?"

"A. No, sir.

"XQ. 84. Whoever it was that sold that to the company sold a producing water system which was at once put out of use; is not that a fact.

"A. I do not so understand it. You would have to ask some of the other witnesses regarding that" (p. 5859).

The payments to Mr. Potter in respect to land purchased in the University Mound Reservoir are shown on Defendant's Exhibit No. 96, as follows:

Date of Deed.	Grantor.	Amount Paid.
February 4, 1881	Geo. C. Potter	\$17,900.00
October 17, 1882	Geo. C. Potter	1,750.00
March 12, 1885	Geo. C. Potter, Jr.	2,300.00

The foregoing items are as stated for land in use in the University Mound Reservoir and are quite distinct from the amount claimed for deduction by Mr. Dockweiler, which is given in Mr. Wenzelburger's Exhibit No. 101, as follows:

Jan. 22, 1881 (p. 46) Wells, Geo. C. Potter.....	\$ 731.25
Feb. 19, 1881 (p. 46) Geo. C. Potter, Boiler and Engine, pumping material furnished and labor.....	1,600.00
Mar. 15, 1881 (p. 46) Geo. C. Potter, Sundry bills....	700.00
Mar. 26, 1881 (p. 46) Geo. C. Potter, Tank foundation account	500.00
Mar. 27, 1881 (p. 46) Geo. C. Potter, account boiler and pump	1,200.00
Apr. 1, 1881 (p. 46) Geo. C. Potter, pipe and labor..	3,168.60
Apr. 13, 1881 (p. 47) Tank, Engine, Compressor, Tools, Etc.	2,500.00
<hr/>	
(Defendants' Exhibit No. 101, page 232).....	\$10,399.85

Mr. Reynolds evidently disputed this item through a misunderstanding, and the work covered having gone out of use, we charge the amount.

No. 38, Old Office Building and Lot.

Mr. Reynolds objected to the inclusion of this item in Mr. Dockweiler's list in the following terms (p. 5856):

"Office building and lot, California street; cost, \$35,142.90; sold for \$25,000.00; leaving a debit of \$10,142.90, which Mr. Dockweiler objects to, but fails to give the property the credit with the rent for that office building for 30 years by the Spring Valley Water Company, which I say is at least an offset to the \$10,142.90."

As this is purely a statement of cost, no question of allowance for rent can enter therein. We, therefore, deduct this amount of \$10,142.90.

No. 39, Branch Flume at Pilarcitos Dam. Pilarcitos old Side Flume.

Mr. Reynolds based his objection to the inclusion of the Branch Flume at Pilarcitos on the ground that Mr. Schussler stated that it was in use (p. 5860). The following extract from Mr. Schussler's testimony regarding the Branch Flume shows that Mr. Reynolds was misinformed on this point (pp. 1683-4) :

"XQ. 482. Then there was a flume leading from the upper Pilarcitos dam to tunnel No. 1?

"A. Yes, sir.

"XQ. 483. Is that flume in existence now?

"A. No, sir, that has all been—by the building of the lower main Pilarcitos dam the level of that flume was flooded by the water and the flume was taken up."

Mr. Schussler further testified as to this Branch Flume (pp. 2174-5) :

"XQ. 2766. There is also mentioned a branch flume built in May, 1864. Do you know what that was?

"A. That may be the side flume.

"XQ. 2767. No, the side flume is being mentioned as built in May, 1876.

"A. As I stated before in my testimony, when we raised

the dam to a height of about 13 feet in addition to its original height, we had also to cut a new grade for the side flume, remove the side flume on to the new grade, raising its grade, and it is possible that that is the item you have there for the side flume.

"MR. KELLOGG—What is the amount of it?

"MR. PARTRIDGE—\$9,970.06.

"THE WITNESS—It is possible that that is the new side flume built on the higher grade.

"MR. PARTRIDGE—XQ. 2768. Does it exist there today?

"A. Yes, but it has been, I think, partly rebuilt.

"XQ. 2769. Was the rebuilding of it charged to maintenance—operating expense?

"A. As I understand it, yes; whatever we rebuild we charge to operating expense; also what we repair. If, at the same time, we build a new line and build it larger than the old line was then, I understand, that the secretary charges the difference, as near as practicable, that is, the increased cost, to new construction."

Mr. Schlusser's statement above is not borne out by the books as Mr. Wenzelburger's Exhibit No. 101 shows charges against Construction Account for the cost of the Branch Flume and the Old and New Side Flumes, as follows:

PILARCITOS BRANCH FLUME—

June 8, 1864.

"Branch Flume Pilarcitos. Expense construction on this work to date (p. 7).....\$1,517.33"
December 31, 1864.

"Branch Flume Pilarcitos. Expended on this work now transferred (p. 9)..... 8,242.73"

\$ 9,760.06

PILARCITOS SIDE FLUME (OLD)—

June 1, 1866.

"Side Flume. Cost of this work (p. 15)....\$ 4,610.35"

June 1, 1867.

"Side Flume. Cost of raising this flume 20
feet to correspond with new elevation of dam
(p. 18)\$ 2,254.75"

June 1, 1868.

"Side Flume. Cost of raising this dam to cor-
respond to height of dam (p. 20)..... 6,764.68"

\$13,629.78

PILARCITOS SIDE FLUME (NEW)—

May 31, 1876.

"Pilarcitos Side Flume (p. 31)..... 3,887.60"

May 31, 1877.

"Pilarcitos Side Flume (p. 33)..... 9,638.28"

\$13,525.88

The above \$13,525.88 expenditure on the Side Flume was incurred from May 5th, 1876, to February 17th, 1877, and details of same are given on pages 250 and 251 of Ledger "D," S. V. W. W., offered in evidence by Mr. Reynolds at page 5768 of his testimony.

Mr. Reynolds did not give any separate figures on this Side Flume or Branch Flume in his Exhibits Nos. 109 and 111, but, as pointed out before, the total of his General Construction Account up to 1880 was identical with that of Mr. Wenzelburger, and therefore it is fair to presume that his figures on these structures were the same. The above figure of \$13,525.88 by Mr. Wenzelburger is also given as representing the Pilarcitos Side

Flume in exhibit filed by complainant with the Supervisors on November 14th, 1900, and mentioned on page 36 of Municipal Reports 1900-1.

As further proof of the building of this Branch Flume in 1864, and in confirmation of Mr. Wenzelburger's figures, we give the following extract from page 117, Book "B" of the Minutes of the Complainant, under date of April 29th, 1864:

"A report, No. 1, from the Chief Engineer, was read, recommending the building of a flume and other works for the purpose of securing a further supply of water from the head streams—the cost of said works as per his estimate \$9,000. Mr. Roxby offered a resolution, seconded by Mr. Carlton, that the engineer be instructed to commence at once the work recommended and to have the same completed as soon as possible. Adopted unanimously."

Mr. Schussler testified in the following terms as to the old Side Flume having gone out of use (p. 1682):

"XQ. 468. You had a conduit line leading from the Pilarcitos reservoir, that is, as it was constructed then to San Francisco, which yesterday you described to some extent. For that conduit line there was a side flume which you have already described. Is that side flume in existence now?"

"A. You mean at Pilarcitos?"

"XQ. 469. Yes.

"A. That has been rebuilt since the flume that was there at the time of the consolidation.

"XQ. 470. Does the present side flume occupy the same position as the old side flume?"

"A. No, I think it was put at a higher position because we raised the dam higher."

Mr. Schussler admitted in the foregoing that the Branch Flume and Old Side Flume had gone out of

use, and we accordingly claim that the following amounts:

Pilarcitos Branch Flume.....	\$ 9,760.06
Pilarcitos Old Side Flume.....	13,629.78
<hr/>	
Totaling	\$23,389.84

should be allowed, covering properties gone out of use.

This leaves as the proportion of the expenditure in use and useful the \$13,525.88 on the New Pilarcitos Side Flume, and in this connection we give the estimates of the various witnesses in this suit as follows (Table No. 18, Pilarcitos System):

Mr. Schussler.....	\$20,000 (p. 760)
Mr. Adams.....	14,000 (p. 5035)
Mr. Schuyler.....	14,000 (p. 5517)
Mr. Grunsky.....	14,000 (p. 803 Municipal Report 1901-2)

No. 40, San Francisco City Water Works.

Mr. Dockweiler's claim for this was \$1,398,120.00 (p. 646), in regard to which Mr. Reynolds testified (p. 5856):

"Complainant objects to City's claim against the San Francisco Water Works, \$1,398,120; of that we claim there is \$360,000 still in use. This \$360,000 does not include San Francisco City Water Works distributing system, nor the value of the running business, which more than doubled the earnings of the consolidated company."

Mr. Schussler's testimony shows that the:

Black Point Pumping Station Tract,
 Francisco Street Reservoir and Lot,
 Lombard Street Reservoir Lot, and
 Certain construction at Lombard Street Reservoir,

are the only properties belonging to the San Francisco City Water Works which are now in use, as follows:

"XQ. 216. . . . What properties which were acquired from the San Francisco City Water Works are still in use?

"A. The company still holds the property at Lobos Creek.

"XQ. 217. What property is there there at Lobos Creek?

"A. I do not know. The land agent has charge of that. I do not have charge of those things. There is simply a strip of land following the course of Lobos Creek on the south side.

"XQ. 218. And the water right there?

"A. Yes, sir.

"XQ. 219. There is no water at all supplied from there to San Francisco?

"A. No, sir, not any; the water is not being used now" (p. 1640).

And:

"XQ. 223. What other property was there there?

"A. The next piece was the property at the foot of Van Ness avenue—at Black Point. That is in use.

"XQ. 224. That was the land?

"A. Yes, a 50-vara lot.

"XQ. 225. Was there anything on that at the time it was acquired?

"A. A pumping station.

"XQ. 226. What has become of that pumping station?

"A. It has been largely taken down. The old pumps have been replaced by better pumps that are more economical.

"XQ. 227. The old pumps are not in use?

"A. No, sir, they were broken up and sold.

"XQ. 228. There is nothing left there of that purchase except the land.

"A. A part of the building and the smoke-stack and the wharf—no, the wharf has been renewed.

"XQ. 229. The old wharf has been renewed?

"A. Yes, sir, naturally; we have coppered piles there now.

"XQ. 230. The land is left; that is, practically all that is left?

"A. The land is left, and we have bought another 50-vara lot next to it.

"XQ. 231. But of the land that was acquired by the city water works at Black Point, how much land was there—one 50 vara?

"A. One 50-vara" (pp. 1641-2).

And:

"XQ. 234. What was the next piece of property?

"A. There were some 50 varas running up the hill. At that time streets were not graded or built, and so the company, in order to make a short cut up the hill—they wanted to go diagonally with their pipes through some of the blocks, and they purchased some other 50-varas for that purpose.

"XQ. 235. Are they still owned by the company?

"A. They are partly sold, and they are not classed among our inventories; they never have been mentioned.

"XQ. 236. They are partly sold. How much of them have been sold?

"A. I think one or two.

"XQ. 237. Do you know which one?

"A. No, sir. The land agent has charge of that.

"XQ. 238. Do you know how much they were sold for?

"A. I do not know.

"XQ. 239. You do not know exactly how much is left?

"A. I think there are one or two left.

"XQ. 240. One or two—you do not know which?

"A. No, not now.

"XQ. 241. Do you know when the company parted with the others?

"A. Within a year or two I think they sold them; I think last year.

"XQ. 242. Quite recently?

"A. Yes, sir.

"XQ. 243. They are not in use at all any more, are they?

"A. No, sir, they never have been classed or quoted amongst our properties for years" (pp. 1642-3).

And:

"XQ. 246. The next piece of property that you acquired was what?

"A. The next piece of property was what we call the Francisco Street Reservoir.

"XQ. 247. The Francisco Street Reservoir; was there a reservoir on that at the time that you acquired it from the San Francisco people?

"A. Yes, sir.

"XQ. 248. And is that reservoir still in existence?

"A. Yes, sir.

"XQ. 249. Just the same as it was then?

"A. Yes, sir. We are going to enlarge that, if possible, this coming year.

"XQ. 250. What was the next piece of property you acquired?

"A. The Francisco street reservoir tract contains nine 50 varas, or one and one-half blocks.

"XQ. 251. Is that in the same condition now as it was then? That is, have you acquired any more property there?

"A. No, sir, it is the same property.

"XQ. 252. What was the next property.

"A. The next property was what we call the Lombard Street reservoir tract; that contains six 50 varas.

"XQ. 253. That is in the same condition now as it was when you acquired it?

"A. The same except we improved the reservoir. We built that last year.

"XQ. 254. Is there any portion of the reservoir that has gone out of use?

"A. No, sir.

"XQ. 255. What was the next piece of property that you acquired from them?

"A. I believe that is all, except the pipes.

"XQ. 256. There was that conduit, was there not?

"A. Yes, sir, the aqueduct from Lobos Creek.

"XQ. 257. What was that?

"A. That was a flume line along the ocean, and then there was a tunnel through Fort Point—a short tunnel—

and then again a piece of flume along the frontage of the Presidio, and finally it terminated in a cement pipe.

"XQ. 258. That is entirely out of use, is it not?

"A. Yes, sir.

"XQ. 259. When did that go out of use?

"A. It must have been as much as 10 years ago. It was caused by a slide. The Government was building a fortification on the hill, and ran the drainage of the fort down the steep slope, which already had developed a slide tendency, and that broke the whole slope and tore away the flume" (pp. 1643-4).

At page 5856, Mr. Reynolds stated that Mr. Schussler valued the real estate acquired from the San Francisco City Water Works at present in use at \$360,000.

The estimates in this suit placed by Mr. Schussler on the properties acquired from the San Francisco City Water Works mentioned above as in use were:

Black Point Pumping Station Tract (two 50 varas at \$16,000; say \$8,000 for the one)	\$ 8,000 (p. 1511)
Francisco Street Reservoir.....	59,000 (p. 1416)
Francisco Street Reservoir Lot.....	72,000 (p. 1511)
Lombard Street Reservoir Lot.....	120,000 (p. 1511)
Lombard Street Reservoir.....	77,000 (p. 1408)
	<hr/>
	\$336,000

This amount of \$336,000, however, includes the whole of the construction work on the Lombard Street Reservoir, which as Mr. Schussler stated at page 1644 was only partly built at the time of the consolidation, and, allowing for this \$300,000.00 would probably be the figure according to Mr. Schussler. It must be remembered that this amount would represent the present

value, whereas this statement is on the basis of cost. The reservoir sites have probably increased in value since their purchase, but it being impossible to obtain cost figures on these San Francisco City Water Works properties, we will have to allow for the properties in use on the basis of present value.

Touching the other item of property in use mentioned by Mr. Reynolds, namely, the pipe in the city distributing system, Mr. Schussler gave at page 1648 of his testimony a list, as of June 1, 1866, of the pipe in the city distributing system owned by the San Francisco City Water Works.

The cost of laying the pipe at that date was very much less than at the present time, but assuming the figures given by Mr. Adams in district B, under basalt, at pages 5313-14, which would be very much higher than the actual cost, and taking the quantities of pipe as given by Mr. Schussler at page 1648, we have the following result:

Size of Pipe.	Length.	Mr. Adams' Units	
		in District B under basalt.	Estimated Cost.
20 inch	874 feet	\$5.62 (p. 5314)	\$ 4,911.88
16 "	539 "	3.96 "	2,134.44
12 "	17,740 "	2.66	47,188.40
10 "	6,929 "	2.15 (p. 5313)	14,897.35
8 "	6,851 "	1.65 "	11,304.15
6 "	11,361 "	1.26 "	14,314.86
4 "	39,710 "	.81 "	32,165.10
3 "	14,978 "	.66 "	9,885.48
			<hr/> \$136,801.66

A credit to construction account of \$83,967.67, covering sale of duplicate mains to the San Francisco Gas Company is shown at page 16, of Mr. Wenzelburger's Exhibit No. 101, under date of June 1st, 1866. Some deduction should undoubtedly be made from the above \$136,801.66 in respect to this, but as there is nothing in the record to show what proportion related to pipe of the San Francisco City Water Works, it is impossible to take credit for this.

Mr. Schussler is shown at pages 1666-7 of his testimony to have been conversant with the details and terms of consolidation of the two companies, and the following statement by him, following after his description of the physical properties acquired from the San Francisco City Water Works, does not give the impression that the Spring Valley Water Works made a good bargain (pp. 1651-2):

"XQ. 290. . . . What I am trying to get at is what the Spring Valley Water Works got for that \$3,200,000?

"A. I have told you what they got.

"XQ. 291. Is that all they got? Would they have paid that amount of money for that if they had not had any water, that is, would they have paid \$3,200,000 merely for that land and those lots and that conduit and those pumps?

"A. I do not know. At the time this property was producing a very good revenue, and the revenue that a thing produces frequently establishes the value. You can take any other business, whether it is transportation or anything else, especially in these days, a thing may cost very little money still it may produce a great big income, and income frequently guides the purchaser in establishing the value.

"XQ. 292. Do you think the price paid by the Spring Valley Water Works for the old San Francisco Water Works was due to the income it produced?

"A. I do not know. You ask me all kinds of questions.

It is speculation. I do not know. I have not the faintest idea what induced these people to buy that property. I simply know they did buy it. I believe that most of these people are dead, so it will be very difficult to find out what were the reasons. I was simply confronted with the idea that the two companies had come together at that time."

The above is in decided contrast to Mr. Reynolds' testimony at pages 5856-7, where he eliminates Mr. Dockweiler's claim of \$1,398,120, assigning as one of the principal reasons for so doing the fact that the shrewd business men forming the directorate of the Spring Valley Water Works had concluded to effect the consolidation.

At pages 1638-9 of Mr. Schussler's testimony, complainant is shown to have included the San Francisco City Water Works at \$3,200,000 in its exhibits to the Supervisors, whereas, in the Construction Account it figures at \$1,698,000 (Mr. Reynolds, Exhibit No. 109; Mr. Wenzelburger, Exhibit No. 101, page 40).

To arrive at the cost of the properties
gone out of use, we must deduct from
this\$ 1,698,000.00

The amount of \$300,000 pre-
viously arrived at on the
basis of Mr. Schussler's es-
timate of present value of ..
the real estate in use.....\$300,000.00

And the figure for the pipe in
the city distributing system
on the basis of Mr. Adams'
units of present value..... 136,801.66 436,801.66

Leaving a balance of.....\$1,261,198.34

representing the cost of the properties of the San Francisco City Water Works gone out of use on this basis.

Mr. Dockweiler's figure was \$1,398,120 (p. 646), and we submit that it would be entirely fair to adopt his figure, which was undoubtedly made upon the basis of cost, whereas, owing to the deficiency of data in the record, our calculation has been based on estimates of present value. We, therefore, reinstate Mr. Dockweiler's item of \$1,398,120.00 in our list of properties not in use.

No. 41, Telegraph; Cost of Lines to Lake Honda, San Andreas and Pilarcitos, in 1868.

The following extract from Book B, Minutes of Complainant, page 276, under date of January 2nd, 1868, records the construction of telegraph lines to Pilarcitos and Lake Honda:

"Moved and seconded, that the action of the President in ordering the construction of a telegraph from this office to Pilarcitos and Lake Honda is hereby fully approved."

In Mr. Wenzelburger's Exhibit No. 101, at page 20, the following item appears:

June 1, 1868. "Telegraph. Cost of lines to Lake Honda, San Andreas and Pilarcitos, also 4 Dist't. \$4,459.04"

This amount is the same as that claimed by Mr. Dockweiler (p. 646). Mr. Schussler does not charge in his estimates for telegraph lines, but mention is made of telephone lines at pages 2968-9 of his testimony. The telegraph lines having undoubtedly gone out of use, we claim that their cost should be deducted.

No. 42, Crystal Springs Upper Dam.

The cost of this dam as given at \$230,827.63 by Mr. Dockweiler (p. 646) is set out by Mr. Wenzelburger at page 227 of Exhibit No. 101. Mr. Dockweiler stated that the dam serves as a roadway and deducting \$50,000.00 as the cost of a steel viaduct obtained \$180,827.63 as the proportional cost of the dam not in use (p. 646). In the section of this brief on Structural Works, extract from the Minutes of Complainant is given (Book "D," June 19th, 1890, page 345), particularly emphasizing the fact that this dam is to be used only as a roadway. We, therefore, reinstate Mr. Dockweiler's deduction of \$180,827.63.

No. 43, Ocean View Pumps.

These pumps were originally the first Crystal Springs pumps, and were constructed in the year 1877 (p. 1713). Mr. Schussler admitted that they had been standing idle for nine years, and that there were only two records of their being used, as follows (pp. 2595-6):

"XQ. 4399. When did you put that there?

"A. I cannot remember exactly, but it must be something like 15 years ago. There was a great need for it then.

"XQ. 4400. You used it then?

"A. Yes, sir.

"XQ. 4401. How long after that did you use it?

"A. I will look at the pump record; I think we have a record here that states it. There are only two records here; one is when we started, when we ran the pump for awhile to test it, in the year 1891; the other record is in the year 1895, when we pumped somewhat over 268,000,000 gallons with it. It has not been used since; in other words, it has been standing idle now for nine years. As you probably

know, it is not a first-class pump; it is one of the old ram pumps that was constructed in a great hurry at a time when we had the very dry season of 1876-77; we constructed this pump then at Crystal Springs and there it ran for sometime during the year 1876-77, and sometime later."

The following shows that Mr. Schussler did not include the Ocean View Pumps in his estimates to the Supervisors in February, 1904 (p. 2515):

"XQ. 4065. The next is Ocean View pump?

"A. I do not believe I included the Ocean View pump in the report to the Supervisors in February, 1904.

"XQ. 4066. Why not?

"A. I do not know; it is omitted here.

"XQ. 4067. Is it in use?

"A. It is ready for use.

"XQ. 4068. Have you ever used it?

"A. We have used it formerly.

"XQ. 4069. Are you using it now?

"A. No, sir, but it is practically ready for use."

We claim that Mr. Schussler's admissions as to these Ocean View Pumps not being in use, justifies Mr. Dockweiler's inclusion of \$25,349.24, covering cost of same in his properties not in use (p. 647) and accordingly reinstate this item.

No. 44, Upper Pilarcitos Dam.

Mr. Dockweiler's figure on this structure of \$31,376.40 (p. 647) is the cost as given by Mr. Wenzelburger on page 39 of his Exhibit No. 101. Mr. Grunsky supports Mr. Dockweiler in his contention that this structure is not in use as follows (p. 415):

"XQ. 527. Do you think now an allowance should be made for the upper Pilarcitos dam?

"A. No, sir. It is one of those properties which deteriorates or depreciates in value by reason of its becoming unsuitable to the service which it renders and I treated it simply as I would treat any other part of the works which goes out of service and is replaced by another structure."

The following testimony by Mr. Schussler shows that the Upper Pilarcitos Dam is only in use to a small extent as a settling basin (pp. 1704-5) :

"The fact is this, that the dam was built for the purpose of making a small storage reservoir at the intake of the old Pilarcitos conduit, and it did not pay to remove the dam, and the dam has acted as a mud-settler for whatever benefit it would bring.

"XQ. 661. The real reason it was left there was because it would not pay to remove it, is it not?

"A. I will not say that. I do not even know whether I would have built it if it had not been there. That is very questionable.

"XQ. 662. As a good engineer, Mr. Schussler, you would not build a dam right in the middle of your reservoir, would you?

"A. As I stated before, that dam was built by my predecessor and it served its purpose. When we built the lower dam we built it high enough to overflow the upper dam. Whatever benefit accrues from the fact that the dam is there accrues to our benefit in this, that it helps to some extent to settle the mud.

"XQ. 663. That is not an answer to my question at all. I asked you whether, as an hydraulic engineer, you would construct, in the body of your reservoir, a mud dam or a clay dam, if you prefer, of that kind?

"A. No, I do not think I would, not in this particular case. We have other cases where we would build it, but the dam being built and having served its purpose it was used and it remained there so as to act and do as much good as it could in the form of a mud settler."

The foregoing testimony of Mr. Schussler shows that

this dam no longer serves the purpose for which it was constructed, and we maintain that it cannot be considered to be in use, and therefore deduct the cost at Mr. Dockweiler's figure of \$31,376.40.

No. 45, Calaveras Dam; Explorations and Surveys.

Mr. Dockweiler claims \$44,446.46 (p. 644) as the cost of the preliminary work on the Calaveras, which is the total amount given by Mr. Wenzelburger at page 230 of Exhibit No. 101. Mr. Reynolds gives the following totals:

Complainant's Exhibit No. 111. Survey Calaveras. \$ 979.62
(Also by Mr. Wenzelburger at page 33 of his
Exhibit No. 101.)

Complainant's Exhibit No. 113. Calaveras Dam. . 48,314.42

\$49,294.04

Mr. Reynolds, however, includes in his total on
Exhibit No. 113, an item of \$4,134.33, expense
incurred in 1904, which should be deducted. . . . 4,134.33

Leaving an amount of. \$45,159.71

representing expenditures up to January 1, 1904, according to Mr. Reynolds.

The following extracts from Mr. Schussler's testimony show that the expenditure was in the nature of prospecting work to determine the site of the dam and that this work is not in use:

"XQ. 3670. Did Mr. Kellogg advise you to take out the \$50,000 you spent on the Calaveras reservoir site for borings and tunnels?

"A. He did not, because that is new construction.

"XQ. 3671. Is that in use?

"A. That is in use to-day as developing the foundation of that dam. Those things are necessary prior to the construction of a dam.

"XQ. 3672. It is not any more necessary prior to the construction of a dam than the dam-site, is it?

"A. Yes, sir.

"XQ. 3673. In what way?

"A. First you must have a dam-site and then you may find by investigation, by prospecting and sinking shafts and driving tunnels, that your dam-site is not worth much because the foundation is poor. Before we could definitely calculate and figure on the cost of construction of the Calaveras dam at the proper time it was absolutely necessary to make the proper investigations, which we did, and that is a part of the construction of the Calaveras dam.

"XQ. 3674. You do not claim that you are supplying any water to San Francisco by means of the Calaveras dam, do you?

"A. No, sir, but it is just as necessary before you can say that you have a dam site or a reservoir site that you find out, and to find out costs money" . . .

"XQ. 3675. You acquired the Calaveras dam-site in 1875, did you not?

"A. I think about that time. I think there was some additional land bought in that neighborhood since.

"XQ. 3676. I mean that particular portion that is the dam-site?

"A. I think the dam-site that I located finally and definitely within the year 1903 by a thorough system of sinking of shafts and driving of tunnels I believe that part of the land was purchased, amongst some other lands of approximately 2,000 acres, in the original purchase of the Alameda Water Works" (pp. 2420-1).

And:

"XQ. 3679. And you held that property for 28 years before you made any investigations to find whether or not there was a proper place for a dam?

"A. I beg your pardon; we did make investigations.

"XQ. 3680. What did you find by those investigations?

"A. We found that there was a chance to build a dam, but the foundations were too deep and too far in the hill. We calculated we could find a better and cheaper location by prospecting thoroughly through the entire country, which we did" (p. 2422).

And:

"XQ. 3687. There is something I want to get clear in the record. You understand me and I understand you, but I want to get it perfectly straight in the record. There is no dam constructed at Calaveras, is there, Mr. Schussler?"

"A. Not now, except that a portion of its foundation has been excavated, and we charge that to the new construction of the dam. I consider that a proper charge.

"XQ. 3688. You never have stored a single drop of water in the Calaveras reservoir, have you?"

"A. We have not, no, sir" (pp. 2424-5).

And:

"XQ. 3667. You do not claim, do you, that the Calaveras is in use as a reservoir site at all?"

"A. The Calaveras—not now; it is a reservoir site which will soon be developed, I hope; it is a very fine reservoir site" (p. 2419).

The intention of the complainant is shown by the following from Mr. Schussler's testimony to be to develop other property before the Calaveras, owing to the great outlay that would be necessitated through the development of the latter (pp. 1829-30):

"Before you start in, Mr. Partridge, I would like to make a statement with reference to some questions asked yesterday. You asked me yesterday about the location of the land on which we proposed to develop water to meet the coming situation. After further consultation with Mr. Kellogg, our attorney, we concluded to waive our rights to object to the question as to these lands. The Company

has for nearly 20 years, through trustees, been purchasing a right of way and adjunct water lands around the foot of the bay of San Francisco for future necessary supply and for conduit lines to Belmont. These purchases are not yet fully completed and it would hazard the enterprise to disclose the identical location and possibly destroy the integrity of the plan except at undue cost. In most instances, as far as the right of way is concerned, we have found it cheapest to buy the tracts out and out than to buy a defined strip of fee simple right of way, because such right of way disintegrated the property, especially as it is proposed to build the conduit on a tall trestle, which we found objectionable to owners of land whenever we tried it. Besides, the land so acquired was, for the most part, water-bearing. The purchase of lands in this joint proposition in the County of San Mateo, for a stretch of several miles, has been completed in the name of trustees and is ready to be turned over to the Spring Valley Water Company whenever it is deemed expedient. On this tract we are now developing water near our existing conduit line, and this is the tract which I mentioned yesterday."

And (pp. 2838-41):

"XQ. 5296. And yet you say that the next water you propose to bring into the city is from the property you have acquired down there around the head of the bay? Why do you do that instead of bringing additional water from the Alameda system?

"A. To bring additional water from the Alameda system would mean the construction of a big dam either at the San Antonio Valley, or the Calaveras Valley, or in the Arroyo Valle, either one of which would entail the expenditure of a large amount of money. As I stated in my testimony the revenue of the company, judging from the reports made to me or statements made to me by our Board of Directors and the executive committee, does not justify the expenditure of several million of dollars at once. They therefore have requested me to go along and develop water, for the present at least, solely so as to meet the growing wants by a more reasonable expenditure for new construction.

"XQ. 5297. Then you have reached the limit of the capacity of these filter beds to hold water, have you not?

"A. No, sir. Those filter beds can hold a great deal more water. But you first must store it in order to filter it.

"XQ. 5298. You mean, then, they could not hold any more water but they could filter more water?

"A. Yes, sir, that is their main object, the filtering of the water. It is an automatic natural self-cleaning filtering apparatus. They hold storage to some extent in this, that if the gravel bed were not there, and instead of that there was a tight bed-rock canyon, then the freshet waters that come down would wash right through the canyon and go to waste. Their first mission now is to spread into the gravel and fill up that large bed of gravel.

"XQ. 5299. Then you are producing from Alameda County at the present time all the water you can produce without the construction of storage reservoirs?

"A. I did not say that.

"XQ. 5300. Could you produce any more?

"A. Yes, sir.

"XQ. 5301. How?

"A. If I would tell you exactly how it would injure the interests of the Company. We have properties there on which we can develop additional water.

"XQ. 5302. By wells?

"A. Yes, sir.

"XQ. 5303. Why do you not do that instead of constructing these wells down at the head of the bay?

"A. Because we are crowding through the Alameda pipe line all it will pack.

"XQ. 5304. The Alameda pipe line is carrying all the water it can?

"A. Just about, and we are waiting for the laying of another Alameda pipe line as soon as our finances justify it.

"XQ. 5305. Would it cost more to lay that pipe than to lay the pipe from the head of the bay there?

"A. We do not lay any pipe from the head of the bay.

"XQ. 5306. How do you calculate to do that?

"A. We are developing right alongside of the Alameda pipe line where it enters the westerly shore of the bay on

our property right there. We have a number of thousands of acres of splendid land in San Mateo County.

"XQ. 5307. Artesian land?

"A. Yes, sir.

"XQ. 5308. How will you get it into the pipes? It must be about sea level?

"A. By power—either steam or electricity.

"XQ. 5309. By pumping?

"A. Yes, sir.

"XQ. 5310. Have you tested that water there from those wells?

"A. Yes, sir.

"XQ. 5311. Is it good water?

"A. It is very satisfactory.

"XQ. 5312. No salt?

"A. No, sir. It is very satisfactory water."

Mr. Schussler evidently considers that quite a period of time will elapse before the development of the Calaveras by the building of a dam could be undertaken, and we consequently claim that this preliminary work can be considered as not in use. The cost of the work is included by Mr. Schussler at \$43,400 in his estimate in this suit on the Alameda Creek System (pp. 1121-2). We deduct this item at the figure given by Mr. Dockweiler, of \$44,446.46, which it will be noted is less than Mr. Reynolds' computation of expenditure therefor.

No. 46, San Antonio Improvements.

This item covers the sinking of a number of shafts in the proposed San Antonio Dam site to ascertain foundation (p. 1122), the cost of which is given in the record by the several witnesses, as follows:

Mr. Dockweiler (p. 644).....	\$4,305.47
Mr. Schussler (p. 1122).....	4,300.00
Mr. Wenzelburger (Exhibit No. 101, p. 232)....	4,305.47
Mr. Reynolds (Exhibit No. 113).....	4,330.47

The amount of \$4,300.00 is included by Mr. Schussler in his estimate on the Alameda Creek System (p. 1122), but the following statements by that gentleman show that the expenditure covers work which is not in use:

"XQ. 5325. Have you made any excavations to determine the proper site for the dam in the San Antonio?"

"A. We have made several excavations; about half a dozen shafts.

"XQ. 5326. Do you include those in your estimate?"

"A. Yes, sir" (p. 2844).

And:

"XQ. 3689. You have no dam erected in the San Antonio reservoir site?"

"A. No, sir, we have only prospected.

"XQ. 3690. You have never stored a single drop of water in the San Antonio?"

"A. No, sir, but we have a reservoir site there" (p. 2425).

We maintain that the amount of \$4,305.47 claimed on San Antonio by Mr. Dockweiler represents property not in use, and we deduct the same.

PROPERTIES ADMITTED AS NOT IN USE BY MR. SCHUS-
SLER.

*No. 47, Portion of Concrete Dam. Colma Gulch
Drainage System. Lake Merced.*

In his estimate on the concrete dam and masonry canal in the Colma Gulch Drainage System, Lake Merced, Mr. Schussler, after giving a total of \$30,600 (p. 1230), stated that of this amount \$5,600.00 worth of work is in use (p. 1230) and continued as follows:

“Deducting \$5,600 from the total cost of the entire upper construction, \$30,600.00, we have \$25,000 worth of this work which is not now in use, but which will be put to use just as soon as the third or upper silt storage dam proves to be a necessity and is being constructed. In my total estimate of this system—of the South Lake Merced Colma Gulch System—I have included this total structure, which, as I state, now contains \$25,000 worth of work which is not in use” (pp. 1230-1).

In our discussion on Lake Merced Drainage System in the Structural Works section of this brief, extract from Mr. Schussler's testimony is given in connection with this work gone out of use. Therein he authorized deduction of \$25,000.00 and 5% of that amount added for interest during construction (p. 2255). This figure is on the basis of present value, but as no figures of cost could possibly be supplied on this abandoned portion of the structure, we have to accept the only figure to be obtained from the record, namely, \$25,000, allowing the 5 per cent as an offset against the difference between present value and cost estimates.

No. 48, Lake Honda Dividing Wall (portion of).

Mr. Schussler, at page 2996 of his testimony, admitted that a certain portion of the dividing wall at Lake Honda, amounting to \$10,000.00, was not in use, as follows:

"MR. KELLOGG—R. D. Q. 1. At what value or price did you estimate the central wall in Lake Honda in your estimate of the value of Lake Honda as of 1903-04?

"A. The wall by itself?

"R. D. Q. 2. Yes?

"A. That is all estimated in stone-mason work, brick work and concrete.

"R. D. Q. 3. What is the aggregate?

"A. What is the object of this?

"R. D. Q. 4. So that if the Court wants to take that item out it can do so.

"A. A portion of the wall could be retained. All I want to convey is that I would not risk the full depth of water in the reservoir against one side because I did not build it, but if you reduce the depth for instance to one-half or two-thirds, then it would be perfectly safe.

"R. D. Q. 5. Then it is useful to that extent?

"A. Fifteen feet in depth it is perfectly safe, but I would not risk it for 25 feet. The upper ten feet you could throw out.

"R. D. Q. 6. How high is the wall altogether?

"A. About 25 feet in the highest place.

"R. D. Q. 7. Have you the figures as to what it is estimated to cost?

"A. It does not exceed \$10,000. That is what you could cut off from the top of the wall.

"R. D. Q. 8. What you could cut off does not exceed \$10,000?

"A. According to my estimate."

This is another case where the only figure available is on the basis of present value, but, as Mr. Schussler

authorized deduction at \$10,000.00, that figure has been used in our list of properties not in use.

No. 49, Portion of Crystal Springs Dairy Lands.

Mr. Schussler's testimony on the Polhemus Tract at Crystal Springs in the Water Rate Investigation of 1897, is quoted at pages 2945-6 of his testimony. The Chairman stated that he understood this tract had been held at about \$40,000, to which Mr. Schussler replied:

"In the first place that land was bought originally before we had located the dam. We first made prospect holes and found there was no fit place to build the dam except the place where the dam is now. And then after that, I do not know how long after the dam was started or located, we purchased all the water rights from the dam site to the bay. We traded with the Parrott people, who had a large tract of land, by giving them a certain amount of water for a very low price. We traded with the Howard estate by giving them some money, I think, and a certain amount of water at a low price and a certain amount at a higher price; they have some water for 5 cents a thousand gallons and some water for 10 or 15 cents a thousand gallons up to a certain amount. The Polhemus tract was a tract of some 800 acres or thereabouts, and with them we could not make a trade unless we bought the entire property. They would not sell the water right in front of the property unless we bought the entire ranch. The consequence was that the only way out of it, because the owners may have stopped us from using the water and diverting it to the city if we would not settle with them; we therefore bought the ranch and deeded to the company a small strip of land along the creek, which contained the water rights, and a road which we were compelled to build for the people that lived in Spanishtown to replace the country road which we were to drown out and flood in the bottom of the valley. And now that ranch which lies up above now, which is absolutely useless for our water works purposes, is being rented for a very fair rental."

The testimony in this suit then continues as follows (p. 2946-7) :

"XQ. 5824. . . . Is that property still owned by the Company?

"A. I believe it is.

"XQ. 5825. For what is that land being used now?

"A. I believe it is rented. I believe they would sell it if they could get a fair price.

"XQ. 5826. For what purpose is it being used?

"A. For dairy purposes.

"XQ. 5827. Does it not drain into the system?

"A. No, sir.

"XQ. 5828. Where does it drain?

"A. That part that we rent drains the other way.

"XQ. 5829. Down the hill?

"A. Yes, sir.

"XQ. 5930. Is credit given for that rent on the books?

"A. The secretary knows that, but I believe that is the way they do.

"MR. KELLOGG—Yes, I can tell you that.

"XQ. 5831. That is not included in the estimate of value, is it, Mr. Schussler?

"A. No, sir."

In the same connection, Mr. Brooks testified (p. 3368) :

"The Polhemus tract, in San Mateo County, bought July, 1886, for \$32,160, has been rented continuously from its purchase, I think, at \$1,600 a year."

As Mr. Schussler shows that the larger portion of the land is useless for water works purposes and is rented, we think a moderate claim for the proportion of the cost of \$32,160, in respect to this rented portion, would be \$25,000, which we have added to our list of properties not in use.

No. 50, Stevens Creek Lands.

Mr. Dockweiler stated at pages 644-5 of his testimony, that the 240 acres on Stevens Creek were not included in his list of properties not in use. Mr. Brooks gives the cost of these lands at \$4,169.50, as follows (p. 3124):

"XQ. 555. Are you prepared this morning to give the date of the land purchased on Stevens Creek and the amount of the purchase price?

"A. Yes, it was purchased January, 1879, the purchase price was \$4,169.50."

Mr. Schussler testified that the property was not in use (p. 1793):

"XQ. 1070. Do you know when that land on Stevens Creek was acquired?

"A. I do not remember, no.

"XQ. 1071. Do you know for what purpose it was acquired?

"A. I do not know except that there was a reservoir site on the creek and a pretty fair dam-site. I have never had it surveyed.

"XQ. 1072. Have you ever delivered any water from it to San Francisco?

"A. No, sir, but it is a very valuable piece of property for water works purposes."

No. 51, Arroyo Valle Lands.

The portion of the lands in Arroyo Valle not in use, according to details given by Mr. Brooks at pages 3095-7 of his testimony, are 4,421.8 acres in extent. Mr. Brooks testified as to the cost of the whole Arroyo Valle Purchase as follows (p. 3148):

"You also asked me for what is known as the El Valle purchase; I tried to explain to you that the El Valle purchase was made through an agent and when it was completed it was turned over to the company; therefore I can only give you it in the shape in which I have it; it was made over as one deed amounting to 3,061.46 acres, in township 4 south, range 2 east, Mt. Diablo meridian, and 3,094.50 acres in township 4 south, range 3 east, the same meridian; that was done in October, 1901, and the amount paid, exclusive of commissions, was \$89,500, as far as my data enables me to say.

"XQ. 704. Do you know how long that was bought by the agent before it was turned over to the company?

"A. No, not exactly; in fact, it was bought at different times, but I should say only a comparatively short time. I should say, so far as my recollection goes, that less than a year was occupied in making the purchase."

Averaging the cost per acre, we have \$64,287.47, covering the 4,421.8 acres not in use in the Arroyo Valle.

This is one of the items allowed by Mr. Schussler in his deduction for properties not in use.

No. 52, Small Dam at Pilarcitos.

In cross-examination Mr. Schussler was questioned on various items in the inventory filed by the complainant with the Board of Supervisors in 1902, and testified in connection with a small dam built in 1864 at Pilarcitos, set out in that inventory, as follows (pp. 2173-4) :

"XQ. 2763. There is mentioned 'a small dam, from March to July, 1864'; do you recollect where that dam was located, or what it was?

"A. No, I do not. I was not there from March to July, 1864. I arrived on the 8th of October, 1864.

"XQ. 2764. There is no small dam existing there at the present time?

"A. I do not remember. What is the amount charged for it?

"XQ. 2765. \$1,142.75?

"A. It might have been a bulkhead built across the Pilarcitos valley up stream from the dam site so as to turn the water of the creek over the excavation of the foundation. I know that there was a large flume at the time I arrived here carrying this creek water over the foundation; I remember it distinctly because in that I made some hydraulic experiments with the velocity of water. That was built from some kind of a levee up stream from the main dam site to carry the bulk of the water across and not flood the pit. Whether that is the dam or not I do not know."

This small dam is given by Mr. Wenzelburger in Exhibit No. 101, page 39, at \$1,152.75, and as it is not included in Mr. Schussler's estimates, we claim that this structure is not in use and deduction should be made of cost of \$1,152.75.

ADDITIONS BY MR. REYNOLDS TO COST FIGURES.

Interest During Construction.

In later testimony Mr. Reynolds attempted to add to his cost figure of \$29,667,641.36 in Exhibit No. 116 (p. 5707) an amount of \$4,101,156.65 made up as follows (p. 5794):

"Since June, 1878, \$12,404,626.61 has been paid in interest and all charged to profit and loss.

One-quarter, or 25% of \$12,404,626.61 is . . . \$3,101,156.65
Add an estimated amount illegitimately charged
general expense, legal expense and salaries,
estimated at 1,000,000.00"

In this way Mr. Reynolds built up the construction account to \$33,768,798.01 (p. 5795) :

"These figures make a total, the interest and the \$1,000,000 which I claim should have been charged to construction, that was charged operating expenses—make a total of \$4,101,156.65, which is to be added to the amount at debit of construction account as per Exhibit No. 116, \$29,667,641.36. Making a total of construction account on this basis of \$33,768,798.01."

If, however, Mr. Reynolds can add interest during construction, surely it would be fair to allow something to cover interest paid on capital invested in properties not in use. In Exhibit No. 133, Mr. Reynolds, in authorizing deduction of \$1,785,746.35 (p. 5858) for properties admitted by him to be not in use, gave the number of years in which each property had been out of use (as shown at pages 105-6 of brief), and the interest calculated thereon. This interest totaled up to \$5,236,832.88, which is in excess of the \$4,101,156.65, claimed by him for interest during construction and improper charges to operating expenses.

The following by Mr. Reynolds shows that he had no basis for his figure covering interest during construction (pp. 5795-7) :

"Q. 586. In making your deduction of that 25 per cent of the interest account which you say should be charged to new construction, did you make any estimate of the time during which different constructions were going on?

"A. No, sir.

"Q. 587. Or the amount of money that was used in them?

"A. No, sir.

"Q. Then you merely use 25 per cent as an estimate?

"A. The construction has been constant. I won't say

every day or every month, but the construction has been, as I understand it, and I only know from hearsay—the construction has been almost constant from the inception of the company to this minute. They have been constantly constructing.

“MR. KELLOGG—Q. 588. You find that from the books?

“A. I find that from the books.

“MR. PARTRIDGE—Q. 589. You would not undertake to say that as much interest should be charged when they are building a flume costing \$50,000, as when they are building a dam costing a million and a half?

“A. No, sir.

“Q. 590. If it is possible to get at the amount of interest that should be charged under the head of interest during new construction, and under your theory charged to new construction, without knowing the time occupied in the construction and the amount of money that went into it, will you please say so?

“A. It would be very difficult. Mr. Kellogg has frequently asked me to make a calculation of that kind and I have not been in possession of knowledge that would enable me to do it. I could not possibly know the details except I saw the books and carried the expenses of those construction works right through.

“MR. KELLOGG—Q. 591. I understand that your estimate of 25 per cent you consider very low under all the circumstances as you have gathered from the books?

“A. As I said I think it fair, and I do think it fair.

“MR. PARTRIDGE—Q. 592. It would have been easy enough, would it not, to estimate the amount of interest that should be charged to new construction during the construction of the Crystal Springs dam?

“A. Possibly so, but it would have been made by some one in possession of greater information than I have.

“Q. 593. Could you not get, for instance, the date when it was begun and the date when it was completed and the amount of money borrowed as the work proceeded?

“A. The books were kept in such a peculiar way that I would be very loath to say that I could cover that ground. They changed their methods of keeping books so many times without any apparent reason.”

Defendants submit that this attempt to correct what are claimed to be prior mistakes of bookkeeping by guess work estimates which the witness himself admits are based upon insufficient information, is entirely without justification. In *Knoxville vs. Knoxville Water Company*, 29 Sup. Ct. Rep., at p. 152, in discussing an allowance for depreciation, it is said:

“If, however, a company fails to perform this plain duty and to exact sufficient returns to keep the investment unimpaired, whether this is the result of unwarranted dividends upon overissues of securities, or of omission to exact proper prices for the output, the fault is its own. When, therefore, a public regulation of its prices comes under question the true value of the property then employed for the purpose of earning a return cannot be enhanced by a consideration of the errors in management which have been committed in the past.”

The same principle applies to this matter of interest during construction. The complainant's books show that such item has never been considered as a part of the cost of the works. Not only has no charge been made therefor, but Mr. Reynolds is unable to ascertain from the books either the respective periods for which, according to his theory, interest should have been charged, or the respective amounts upon which such interest should have been computed. The attempt to supply these deficiencies by an arbitrary one-fourth of all interest paid for whatever purpose from 1878 to date is on a par with some of the other lump sum estimates of complainant's witnesses in this case, but is absolutely valueless as a basis for judicial action. The acceptance of such computations would be to base a finding as to

the cost of complainant's properties on the guess of a single witness, which is founded upon nothing more definite than his own unsupported judgment.

Mr. Reynolds did not submit any real basis for, or figures making up, the \$1,000,000 claimed by him to have been improperly charged to operating expenses, but attempted to justify it by the conclusion that if Mr. Wenzelburger found a certain amount improperly charged in the years 1901, 1902 and 1903, \$1,000,000 would not be an overcharge for 40 years (p. 5794).

As previously shown, Mr. Wenzelburger considered that large sums had been erroneously charged to construction account, and the following is submitted in support of this finding:

Mr. Wenzelburger gave at page 21 of his Exhibit No. 100, a memorandum he found in the books, which roughly segregated the cost of the works up to December 31st, 1900, and added gross amounts for Construction Account in respect to the years 1901, 1902 and 1903, the total being.....\$28,556,297.36

He then makes the following table and statements in connection with this (Defendants' Exhibit No. 100, pages 22-3):

"Deducting from this the amount of the items charged at various times and eliminated by me as not construction, namely.....\$ 3,209,322.63

We have as the cost of the Company's plant..\$25,346,974.73
My figures taken from the Company's general books shows the cost of plant to be not to exceed 26,925,133.32

A difference of.....\$ 1,578,158.59

“On pages 6 and 7 of this report I call attention to the fact that in compiling my figures to arrive at cost of plant I have eliminated from the Construction Accounts only such items as were plainly wrongly charged thereto, and that I believe the Operating Expense Charges, Tax Payments, etc., which have crept into Construction Accounts, *and the missing cash book items*, could the details thereof be obtained, would show additional sums totalling a large amount, erroneously charged to Construction. This sum might easily be the \$1,578,158.59 difference above mentioned. So we here have a cost of plant to January 1st, 1904, taking figures made by the Company as a basis of \$25,346,974.73, as shown. Lest objection should be made to this result on the ground that it is not right to eliminate from the total of this ‘Recapitulation of Cost’ memorandum the erroneous charges to Construction, amounting to \$3,209,322.63, which I specifically enumerated because there is nothing to show in the memorandum itself that such items are included, I beg to call your attention to the fact that there is plain evidence of charges not construction being included. For the gross Permanent Improvement Expense, as shown by the books for the years 1901, 1902 and 1903, is used in making up the figures of the memorandum, and these figures include the bond expense of those years, which are not construction expense as has already been explained.”

CONCLUSIONS AS TO COST OF PROPERTIES.

As a result of the foregoing discussion, defendants submit that the attempted additions by Mr. Reynolds for interest during construction and improper charges to operating expenses are unwarranted: that all the properties hereinbefore designated as not being in use are properly included in that category: that the deductions made from the figures of both Mr. Reynolds and Mr. Wenzelburger in the preceding pages are fully warranted: and that the net cost of complainant's properties now in use, as appears from its books of account as deduced by these two witnesses, are the figures above stated, to wit:

MR. REYNOLDS.....	\$22,270,687.70
MR. WENZELBURGER.....	\$22,279,689.23

AMOUNT OF INVESTMENT IN COMPLAINANT'S PROPERTIES BY STOCKHOLDERS AND BONDHOLDERS.

The figures given in the foregoing discussion on cost of complainant's properties are derived from the construction accounts of complainant and its predecessors as shown by its books. As a check upon the cost of these properties we now refer to the amount actually invested by the stock and bond holders of complainant and its predecessors, as shown by the deductions of Mr. Reynolds, complainant's expert accountant.

Mr. Reynolds gave an investment value for the works of complainant of \$50,513,722.98 (p. 4622 of his testimony, and p. 19 of his Exhibit No. 104). This he arrived at by adding interest on the first of each year at the rates given by Mr. Wright, the Statistician, at pages 3383-4 of testimony, and deducting dividends paid with interest calculated thereon at the same rates up to the first of each year. The total figures given at page 19 of Complainant's Exhibit No. 104 up to January 1, 1905, are:

Contributions by stockholders (Complainant's Exhibit No. 127, and at page 4621 of testimony)	\$ 9,177,496.82
Interest calculated as above stated.....	49,262,867.19
	<hr/>
	\$58,440,364.01

Less

Dividends to Jan. 1, 1904.....	\$22,450,313.26
Dividend paid during 1904 (p. 16 of Complainant's Ex. 104) .	529,200.00
	<hr/>
	\$22,979,513.26
Interest on dividends and on re-payment to stockholders of \$210,750.00 in 1865.....	\$ 922,127.77
	<hr/>
	\$23,901,641.03
	<hr/>
	\$34,538,722.98
Bonds	15,975,000.00
	<hr/>
	\$50,513,722.98

As previously stated the above figure of \$50,513,722.98 is given by Mr. Reynolds up to January 1, 1905. All our calculations of cost have been as of January 1, 1904, and therefore in order to put this on the same basis it will be necessary to modify Mr. Reynolds' figures, as follows:

Amount of investment given by Mr. Reynolds at page 15 of Exhibit No. 104 (being contributions by stockholders, plus interest at Wright's rates, minus dividends), at January 1, 1904.....	\$33,258,129.84
Bonds (total face value of bonds outstanding at January 1, 1905, no figure being given by Mr. Reynolds on face value of bonds at January 1, 1904).....	15,975,000.00
<hr/>	
Making the total Investment Value at January 1, 1904, according to Mr. Reynolds' Exhibit No. 104.....	\$49,233,129.84
Of this \$49,233,129.84, the actual cash invested, is represented by—	
Contributions by stockholders..	\$ 9,177,496.82
Cash received on bonds, as shown at page 175 of this brief, at January 1, 1904.....	13,530,292.55
<hr/>	
	\$22,707,789.37
<hr/>	
Leaving	\$26,525,340.47
<hr/>	

which represents the difference between the amount of cash received for the stocks and bonds and the investment value as arrived at by Mr. Reynolds. This amount of \$26,166,340.47 is evidently regarded by Mr. Reynolds as the deficiency which should have been received by the stockholders at the very high rates of interest selected by him, as against the dividends they actually received with interest thereon to the first of each year. It is at once evident that the large differences between the interest as calculated by Mr. Rey-

nolds and the dividends, added on to the capital each year, must enormously inflate the investment account.

It would be fair to argue that, if the stockholders in complainant company received dividends as high as, or higher than, what they would have received if their money had been lodged in Savings Banks, or lent out on loans at the same rates of interest which the company itself paid, they had received satisfactory returns on their investment, and Table No. 1 has been prepared to show that the stockholders did receive much higher rates of interest, and consequently larger returns, than they would have received had their money been invested in the other channels mentioned.

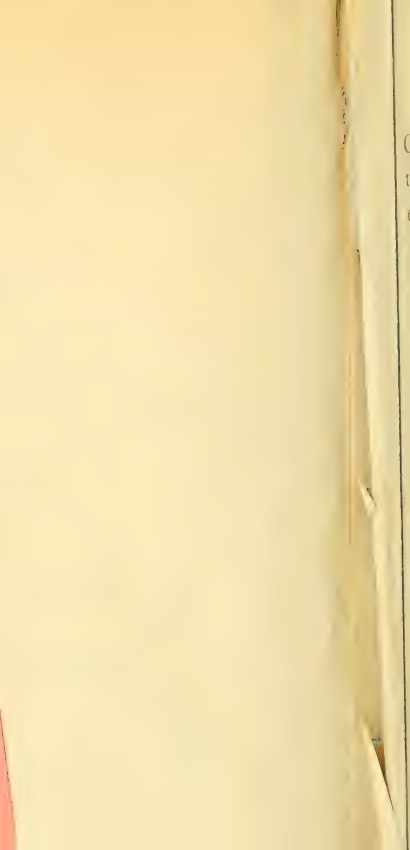
In arriving at his figures of investment value as detailed in Exhibit No. 104 (the totals of which have been given previously), Mr. Reynolds did not include the undivided profits set out in column 5 of Table No. 1. It is submitted that the correct method of dealing with undivided profits, which the stockholders permitted to be retained and added to their investment, rather than to draw the same as dividends, is to add such profits at the end of each year to the credit of the stockholders' account. But, if this is done, the profits earned during that year, which were not drawn as dividends, but were re-invested in the plant, must be considered as a portion of the profits of such year. The total profit realized during any given year is the sum of the amount drawn by the stockholders in dividends, and the amount which might have been distributed as dividends, but which was retained by the

<p> n To- and have es of Com- Loans </p>	<p>s.</p>
---	-----------

Source

<p> Savings Bank Rates of Interest. </p>

<p> Percentage of Total Profits (Col. 11) on Total Invest- ment (Col. 7). </p>



Company and re-invested in its properties. If, then, the capital investment is regarded as being increased each year by the undivided profits re-invested, it is evident that such profits must also be considered as a part of the earnings produced by the total investment.

It is upon this theory that Table No. 1 has been prepared. It differs from Mr. Reynolds' figures in Exhibit No. 127, in that he has added each year the undivided profits as a part of the investment by stockholders, without allowing for the increase of income or earnings represented by such undivided profits. Mr. Reynolds admitted on cross-examination that undivided profits form a part of each stockholder's earnings, thus sustaining the above contention. He said:

"XQ. 53. The profit that the stockholders made in 1880, for instance, was the dividend that was received, plus the amount that they contributed to go into the works, was it not?

"A. Not necessarily, because he may have contributed independent of his profits.

"XQ. 54. If he did, he got stock for it, did he not?

"A. True, he got stock for it, but that would go into the works.

"XQ. 55. If you take the amount of capital that a man has invested in this corporation in any one year, say 1880, or any other year, what would be the amount of his profit on the amount that he has invested in that year?

"A. It would be the amount of his capital plus his earned and undivided dividends.

"XQ. 56. Then the amount of profit that a man makes each year is that which he receives in dividends plus the undivided profits?

"A. Yes, sir.

"XQ. 57. Which goes into the works?

"A. Yes, sir.

"XQ. 58. Then in order to determine the percentage he received in any one year, you would have to add together his dividend and his proportion of the undivided profits, would you not?

"A. The works would get the benefit of it; the capital would get the benefit of it.

"XQ. 59. Each stockholder owns a certain proportion of the property of the corporation, does he not?

"A. Yes, sir.

"XQ. 60. You have not done that in making up your table, have you?

"A. No, sir.

"XQ. 61. Then in order to get at the rate of earnings of each man's contribution to the capital stock in any one year, we would have to determine first, the dividend; second, that proportion of operating expense which properly goes to new construction, and any other undivided profits, would we not?

"A. You mean prior to 1879?

"XQ. 62. Yes, I always refer to prior to 1879.

"A. Yes, sir.

"XQ. 63. That would be the same for the fiscal year 1902-03, would it not?

"A. Certainly.

"XQ. 64. And for the fiscal year 1903-04, would it not?

"A. Yes, sir.

"XQ. 65. And for the fiscal year 1904-05, would it not?

"A. Certainly.

"XQ. 66. Prior to 1879, you say it is impossible to determine those matters on account of the way in which the books were kept?

"A. I say that prior to 1879 it all went—contributions, loans, borrows, earnings, everything, went into one pot and was paid out indiscriminately to operating expenses, to construction and to maintaining the business generally.

"XQ. 67. So you could not determine those things?

"A. No, sir. I do not say I could not, but I never have" (pp. 5829-31).

Table No. 1 differs from the tables submitted by Messrs. Fitzgerald (p. 468) and Dockweiler (pp. 631 and 637), in that they take no account of undivided profits, either as an increase of the capital invested or of the profits earned, and commence at 1865, instead of at the inception of the companies.

Table No. 1 shows that the stockholders from the inception of companies down to January 1, 1904, received \$4,171,817.58 more than they would have received had their money been deposited with Savings Banks, and \$2,580,211.36 more than if it had been loaned at the rates of interest paid by the Company on its own loans. Consequently, it must be admitted that the dividends received were highly satisfactory, and that there is no justification for the enormous addition made by Mr. Reynolds to cover deficiency of revenue.

The actual investment in the Works, as of January 1, 1904, is determined in the following manner:

Capital actually paid in through contributions by stockholders (column 3 of Table No. 1).....	\$ 9,177,496.82
Undivided Profits to 1880, put back into the Works, (column 5 of Table No. 1). No undivided profits were allowed to accumulate after 1880.....	3,991,228.70
Cash received for the sale of Bonds up to January 1, 1904 (page 175 of this brief).....	13,530,292.55
	<hr/>
	\$26,699,018.07

Forward, \$26,699,018.07

This figure represents the cash invested in all the properties of complainant, including those not in use as well as those in use and useful.

Deducting total cost of properties not in use as shown on page 110 of this brief..... 4,645,444.09

We have a figure of.....\$22,053,573.98

representing the cash invested by the stockholders, plus money received for bonds sold, on properties in use and useful, as of January 1, 1904.

This is very close to the net cost figures obtained from the books, as shown on page 92 of this brief, as follows:

Mr. Reynolds	\$22,270,687.70
Mr. Wenzelburger	22,279,689.23

BONDS.

On Exhibit No. 105, filed June 27th, 1905, Mr. Reynolds gives the par value of the outstanding bonds on that date as \$16,975,000.00, made up of three items, viz:

Cash Received	\$14,787,877.85
Bonds Redeemed	1,459,000.00
Net Discounts	728,122.15
	<hr/>
	\$16,975,000.00

These bonds are divided among four issues. The last issue or "General Mortgage Bonds" were authorized by stockholders' meeting of the Spring Valley Water Company held November 23d, 1903. Prior to this last issue the amount actually received for the three prior issues, as shown by Mr. Reynolds' exhibit, was:

First Mortgage Bonds.....	\$ 3,685,385.20
Second Mortgage Bonds.....	4,776,243.19
Third Mortgage Bonds.....	3,497,147.10

Or a total received of.....\$11,958,775.49

Of the First Mortgage Bonds which were issued June 25th, 1879, one thousand one hundred (1,100) bonds were used to redeem outstanding bonds issued prior to the commencement of the Exhibit. The par value of the bonds so used was..... 1,100,000.00

\$13,058,775.49

This last figure represents the total investment of bondholders, prior to the last issuance of bonds; as is shown by Mr. Reynolds' testimony on page 4820, as follows:

"Q. 537. Can you tell us, Mr. Reynolds, the actual amount received by the sale of bonds, in February, 1903—that is, up to February, 1903. That would be all cash received for bonds prior to the general mortgage bonds?

"A. For the \$13,975,000 bonds there had been received

in cash \$11,958,775.49, and there had been redeemed 1,100 bonds of the former issue by the new issue.

"Q. 538. Making \$13,058,775.49; is that right?

"A. Yes, sir" (p. 4820).

Of the General Mortgage Bonds, a total of 3,359 were issued, of which 359 were used to redeem certain of the Second Mortgage and Third Mortgage Bonds, theretofore issued and sold; and the remaining 3,000 bonds were sold for \$2,829,102.36. The 359 bonds redeemed by a part of this issue have already been accounted for and their purchase price credited under the cash received for the respective issues of bonds to which they belonged. It is manifest, therefore, that the par value of the bonds of the last issue which took the place of these earlier bonds cannot again be computed as an investment in bonds. To do so would be to add the same amount twice. The distinction between these redeemed bonds and the \$1,100,000 of such bonds allowed above, is that those earlier bonds were issued prior to the First Mortgage Bonds and at a date earlier than the commencement of Mr. Reynolds' exhibit, and their value was not, therefore, included in the amount of cash received according to such exhibit. A more satisfactory showing would have been made if Mr. Reynolds had given the actual cash received for the bonds issued prior to the First Mortgage Bonds, but as that was not given, the redemptions of these earlier bonds are allowed at their par value.

Of the General Mortgage Bonds, five hundred, or one-sixth of the total, were issued during 1903. The selling price for the entire 3,000 bonds, according to

Mr. Reynolds' Exhibit No. 105, was \$2,829,102.36. As the exact amount of discount and expense chargeable to the first five hundred bonds is not available, one-sixth of the above amount is assumed as the amount received for the five hundred bonds sold in 1903. . \$ 471,517.06

To which is added the total investment

of bondholders prior to the last issue,

as above 13,058,775.49

Making a total of \$13,530,292.55

which represents the total investment of bondholders to January 1st, 1904. This last figure is used in this brief where reference is made to the amount actually received from the sale of bonds.

In order to arrive at the amount actually received for bonds to the date of Mr. Reynolds' Exhibit No. 105, it is necessary to add to the total for February, 1903, above \$13,058,775.49

The amount of cash received from the

General Mortgage Bonds as per Ex-

hibit No. 105 2,829,102.36

\$15,887,877.85

Which equals the first item of "Cash

Received" in the Final Resume of the

Exhibit 14,787,877.85

And the par value of the bonds redeemed

which are not otherwise accounted for 1,100,000.00

\$15,887,877.85

The third item in Mr. Reynolds' resume, viz: "Net Discounts," represents the difference between premiums paid and discounts suffered upon the sale of these bonds, and manifestly cannot be considered in computing the amount of cash actually received for the sale of the bonds. It is added in the exhibit in order to account for the par value of the bonds.

It is apparent that the amounts realized upon sales of bonds and invested in complainant's properties is the actual cash received, and that the par value of the bonds is immaterial except as a basis for computation of the amounts realized.

PAR VALUE OF BONDS.

As the par value of the bonds outstanding at different dates is referred to in this and complainant's brief, details are given on the par value of bonds outstanding as at certain dates, as follows:

The par value of the outstanding bonds	
in February, 1903, prior to the issuance of the General Mortgage Bonds, according to Complainants' Exhibit No. 105, was	
	\$13,975,000.00
Of the General Mortgage Bonds, there was delivered in December, 1903 (p. 4815)	
	500,000.00
Par value of bonds outstanding January 1st, 1904, as per Mr. Wenzelburger's Exhibit No. 101, page 235.....	
	\$14,475,000.00

	Forward, \$14,475,000.00
Delivered January, 1904, balance of sale of 1,000 authorized on December 3, 1903 (Minute Book "A," p. 329; see page 180 of this brief)	500,000.00
<hr/>	
Total par value of bonds outstanding January 31st, 1904	\$14,975,000.00
Delivered November 19th, 1904 (p. 4816)	500,000.00
<hr/>	
Total par value of bonds outstanding January 1st, 1905	\$15,475,000.00
Delivered February 28th, 1905 (p. 4817)	500,000.00
Delivered May 1st, 1905 (p. 4817)	1,000,000.00
<hr/>	
Total par value of outstanding bonds, June 27th, 1905, as per Mr. Reynolds' Exhibit No. 105	\$16,975,000.00

VALUE OF COMPLAINANT'S PROPERTY AS DETERMINED BY THE MARKET PRICE OF ITS STOCKS AND BONDS.

CAPITAL STOCK :

Prior to the incorporation of the Spring Valley Water Company, the capital stock of the Spring Valley Water Works amounted to \$16,000,000, of which only \$14,000,000 had been issued. By virtue of the new incorporation, the capital stock was increased to \$28,-

000,000, without any additional payment being made by the stockholders. This is shown by the following extract from the testimony:

"MR. KELLOGG— . . . it is only fair for me to call to your attention, Mr. Partridge, the fact that the par value of the outstanding stock in the new company is \$28,000,000 instead of \$14,000,000.

"MR. PARTRIDGE—The stock, of course, was simply doubled, by the process of bookkeeping, was it not, Mr. Kellogg?

"MR. KELLOGG—No, it was doubled by the process of a new incorporation.

"MR. PARTRIDGE—And the stockholders, of course, did not pay anything additional for that 2 for 1, did they?

"MR. KELLOGG—They did not. I simply called your attention to that because the answer to that question might be misinterpreted; that is all" (p. 4505).

Mr. Schussler stated that the stocks and bonds represent in the market, in the mind of the public, the value of the works (p. 2906).

A stipulation appears on page 5851a of the testimony to the effect that certain persons, who had previously filed affidavits, "if called, sworn and examined "on behalf of the complainant in these actions, would "testify as stated after the names of each, as follows, "to wit:"

Among the persons, whose affidavits were covered by the above stipulation, are certain stock and bond brokers produced by complainant, all of whom fixed the value of complainant's capital stock at the time of their testimony (January, 1906) at the same figure

given by them in their affidavits filed June 9, 1904. These figures are as follows:

	Market Price.	Page of Testimony.
John Perry, Jr.....	\$40.50	5851 i
Jacob Barth	\$40.25 and \$40.50	5851 j
Charles Sutro	\$40.25 and \$40.50	5851 k

Taking \$40.50 as the selling price of the stock, we have a market value for the \$28,000,000 capital stock, as of June 9, 1904, of \$11,340,000.00.

BONDS:

With regard to the market value of the bonds, an agreement entered into with the Bank of California, dated April 30, 1903, which appears in Book "A," of the Minutes, on pages 6 to 9, and of which the following is an extract, shows that that bank agreed to purchase 3,000 of the General Mortgage Bonds at par, less 5 per cent, or \$950:

"The first party agrees to purchase from the second party 3000 of the \$1000.00 gold bonds, as and proposed to be issued by the second party, at par and accrued interest, less 5 per cent, upon and under the following conditions . . ."

The first sale under this agreement, being of 1,000 bonds, was made on December 3, 1903, according to Mr. Reynolds (p. 4815), and this is confirmed by the following extract from Book "A" of the Minutes, under that date, at page 329:

“Resolved, That the President be and he is hereby authorized and instructed to deliver to the Bank of California 1000 General Mortgage Gold Bonds, namely, numbers 1 to 1000, both inclusive, of the par value of \$1000.00 each, in accordance with the terms of an agreement made and entered into on the thirtieth day of April, 1903, by and between the Bank of California, as party of the first part thereto and the Spring Valley Water Company, as party of the second part thereto.”

The second sale, being of 500 of the bonds, was made on November 19, 1904 (p. 4816), and the balance in two lots of 500 and 1000 bonds on February 28, and May 1, 1905 (p. 4817). The selling price to the Bank of California on all these bonds, sold from 1903 to 1905, is stated by Mr. Reynolds to have been par, less 5 per cent, in accordance with agreement of April 30, 1903 (pp. 4816-9).

The market value of the bonds, either at January 1, 1904, or June 9, 1904 (at which date the selling price of the stock has been given on foregoing pages) is therefore shown to be par value of \$1,000.00, less 5 per cent, or \$950.00 net.

At page 177 of this brief it is shown that up to January 31, 1904, a total of \$14,975,000.00 par value of bonds had been sold, which figure remained unaltered until the next sale of November 19, 1904.

\$14,975,000.00 par value of bonds

at \$950.00 each equals. \$14,226,250.00

As the prior issues of bonds were to be redeemed by the last issue, the market value of the latter applies to all.

FLOATING DEBT:

Mr. Reynolds gives details of the floating debt at January 31, 1903 (p. 4820) and at December 31, 1904 (Exhibit No. 116), but does not give any figures to apply for January 1, 1904, or June 9, 1904, the date of the affidavits on the market value of the stock.

Mr. Wenzelburger, in his Segregated Trial Balance, as of January 1, 1904, in Exhibit No. 101, gives figures as follows, which total up to a floating debt of \$1,188,893.45:

Liabilities.

Bills Payable (p. 235).....	\$ 980,500.00
Hibernia Savings & Loan Society (p. 235).....	234,000.00
Dividends—Scrip and Unpaid (p. 235).....	22,578.35
Unpaid Coupons (p. 235).....	17,230.00
Deposits on Meters and Keys (p. 235).....	16,530.10
	<hr/>
	\$ 1,270,838.45

Less Cash Assets.

Bank of California (p. 234).....	\$25,869.32
Cash in Hand (p. 234).....	48,288.20
City and County of San Francisco (p. 233)	4,685.50
Deutsche Verein Bank (p. 233).....	2,127.62
Sundry Debtors (p. 233).....	967.49
Laidlaw, Dunn, Gordon Co. (p. 233) ..	6.00
G. Verdier (p. 233).....	.87
	<hr/>
	81,945.00
	<hr/>
	\$ 1,188,893.45

This figure we have used in our calculation.

RECAPITULATION :

Stock Market Value.....	\$11,340,000.00
Bonds, Market Value.....	14,226,250.00
Floating Debt	1,188,893.45
	<hr/>
	\$26,755,143.45

This figure represents the value of complainant's property based on the market price of its stocks and bonds and including its floating debt. It, however, covers all the properties of complainant, of every kind and character, including those not in use, as well as those in use and useful.

Deducting total cost of properties not in use, as shown on page 110 of this brief.....	4,645,444.09
	<hr/>

We have a figure representing the value of the properties in use and useful, based on the market value of the stocks, bonds and floating debt of. . \$22,109,699.36

which is remarkably close to the net cost figures obtained from the statements of Messrs. Reynolds and Wenzelburger of \$22,270,687.70 and \$22,279,689.23, respectively, as shown at page 92 of this brief.

DIVIDENDS AND PROFITS.

Table No. 1 shows the dividends and profits accruing to the stockholders from the inception of the companies to January 1, 1904, to have been as follows:

Distributed in Dividends (column 9):

San Francisco City Water Works.	\$ 69,980.00
Spring Valley Water Works.....	22,380,333.26

\$22,450,313.26

Undivided Profits put back into the Works
(column 5):

San Francisco City Water Works.	\$ 650,820.03
Spring Valley Water Works....	3,340,408.67

3,991,228.70

Total Profits (column 11).....\$26,441,541.96

The above figures are shown by columns 6 and 10 to have been derived from Mr. Reynolds' exhibits.

To this total must be added the balance of the Profit and Loss Account at January 1, 1904. Mr. Reynolds' Exhibits are given as of January 1, 1905, and consequently the Profit and Loss balance named by him is of that date. Therefore for date of January 1, 1904, we have to adopt Mr. Wenzelburger's figure given on page 396 of Exhibit No. 101.....

87,116.62

\$26,528,658.58

Representing total profits realized by stockholders to January 1, 1904, based on Mr. Reynolds' exhibits.

It is noticeable that Mr. Wenzelburger arrives at a higher figure on the profits of the company in Exhibit No. 100, pages 26 and 27, his figures being as follows:

Receipts from 1860 to 1904 on water rates, rents, fishing and sundries, aggregating....	\$52,589,499.06
Disbursements from 1860 to 1904 for expense, dividends and sundries, aggregating.....	48,172,974.58
<hr/>	
Total Undivided Profits.....	\$ 4,416,524.48
Total Dividends paid Stockholders to January 1, 1904	22,364,148.73
<hr/>	
Total Profits, Divided and Undivided, accord- ing to Mr. Wenzelburger.....	\$26,780,673.21

It must be borne in mind that these profits relate only to the Spring Valley Water Works (both the original company prior to 1865 and the consolidated company after that date) and do not include any figures on the San Francisco City Water Works, Mr. Wenzelburger not having had access to the books of that corporation.

To Mr. Wenzelburger's total must therefore be added:

The Undivided Profits of the San Francisco City Water Works (see column 5 of Table No. 1	650,820.03
And the Dividends paid by the San Francisco City Water Works, given in column 9 of Table No. 1.....	69,980.00
<hr/>	
Total	\$27,501,473.24

This figure we claim represents much more nearly the real profits of the company than the total according to Mr. Reynolds, and in confirmation we give the following conclusions arrived at from a close scrutiny of Mr. Reynolds' exhibits and comparison of same with Mr. Wenzelburger's detail schedule.

DIVIDENDS:

After allowing for the dividends paid by the San Francisco City Water Works, Mr. Reynolds' total figure on dividends as shown on Table No. 1 will be found to exceed that of Mr. Wenzelburger by \$16,184.53, which arises through differences in the years 1872, 1878, 1879, 1880, 1889 and 1890.

UNDIVIDED PROFITS:

Of the \$4,416,524.48 undivided profits, from 1860 to 1904, given by Mr. Wenzelburger, \$87,116.62 represents the balance of Profit and Loss Account at January 1, 1904, leaving a total of undivided profits put back into the works of \$4,329,407.86 (Exhibit No. 100, pp. 26-7). This is confirmed by Mr. Reynolds in the following testimony (p. 5811):

"I testified on pages 5323 to 5324 regarding Exhibit No. 107 that the net profits of the Spring Valley Water Company, first and last, to say January 1, 1879, over and above operating expenses and dividends paid to stockholders, were \$4,329,407.86; all of which stood until January 21, 1889, at the credit of Income Account, which was then improperly transferred to the credit of Construction Account."

Here we have Mr. Reynolds' own admission that the undivided profits accruing to the stockholders up to 1880 amount to \$4,329,407.86. In the above testimony, and also in Exhibits Nos. 107 and 111, Mr. Reynolds claimed that this amount had been erroneously transferred from Income Account to the credit of Construction Account. He further stated on both those exhibits that items totaling \$982,593.60, had been charged to Construction Account, which should have been debited to Operating Expenses. In adjusting the entries in the books, the proper method would have been to, first, debit Construction Account and credit Income Account with the \$4,329,407.86 claimed to have been improperly transferred; second, debit Operating Expenses and credit Construction Account with the \$982,593.60 stated to have been improperly charged to the latter account. Instead of that, Mr. Reynolds debited Construction Account and credited Income Account with the difference between \$4,329,407.86 and \$982,593.60, namely, \$3,346,814.26 (see Exhibits Nos. 107, 111, 116 and 127, and page 5324 of testimony), thereby robbing Income Account, *i. e.*, Undivided Profits, of \$982,593.60, which was properly a matter of adjustment as between Construction Account and Operating Expenses and did not affect Income Account in any way, shape or form.

That Mr. Reynolds was not clear in his own mind as to the proper amount to be left to the credit of Undivided Profits is evidenced by the fact that at an earlier point in his testimony (pp. 4839-40) he claimed

deduction of a further \$6,405.59, which he omitted in Exhibits Nos. 107, 111 and 116, but included in his Exhibit No. 127.

In view of our argument immediately preceding, we claim that Mr. Reynolds' action in deducting these items of \$982,593.60 and \$6,405.59 from Income Account was unwarranted and unjustified, and we accordingly add them to Mr. Reynolds' figure on Undivided Profits in Column 5 of Table No. 1, namely, \$3,991,228.70, making a total for Undivided Profits of \$4,980,227.89.

Bearing in mind the fact that Mr. Wenzelburger did not have access to the books of the San Francisco City Water Works, and that the Undivided Profits of that company totaling \$650,820.03 (Column 5 of Table No. 1) must be added to his figure of \$4,329,407.86, it will be found that Mr. Wenzelburger also arrives at exactly the same figure as the preceding calculation based on Mr. Reynolds, viz., the sum of \$4,980,227.89. Thus the accuracy of this computation is shown by the fact that figures derived from independent sources exactly correspond.

We therefore add to the total profits (as given previously) obtained from Mr. Reynolds' statements of	\$26,528,658.58
The amount wrongly deducted by Mr. Reynolds from undivided profits of.....	988,999.19
	<hr/>
Giving the real profits of the Company as.....	\$27,517,657.77
	<hr/>

which is as nearly as they can be ascertained from the exhibits of the financial experts.

In preparing Table No. 1, it has been necessary to give figures on the Undivided Profits of each year, substantiated from the record, and therefore we adopted Mr. Reynolds' figures as given in Exhibits Nos. 107 and 127, but we now point out that if this \$988,999.19 deducted by Mr. Reynolds had been included in Columns 5 and 7, the total profits in Column 11, as well as the excess of profits over amount that would have been earned at savings bank rates of interest in Column 19, and over rates of interest paid by company on its own loans in Column 22, would have been higher, while the loss down to 1879 shown in Column 22 by comparison between total profits and amount that would have been earned at rates paid by company on its own loans would have been eliminated and a profit shown.

AVERAGE RETURNS ON CAPITAL ACTUALLY INVESTED AT
CERTAIN PERIODS.

To ascertain the average returns for periods of years on the capital actually invested, we abstract the following figures from Table No. 1:

Period.	No. of Years.	Capital Actually Paid in.	Total of Dividends and Undivided Profits.	Average Percentage per Year.
1859 to 1879.....	21	\$3,501,825.96	\$11,875,595.78	16.1%
1880 to 1889.....	10	4,455,346.96	4,935,861.45	11.1%
1890 to 1894.....	5	6,903,919.00	3,626,722.23	10.5%
1895 to 1899.....	5	9,177,496.82	3,651,362.50	7.9%
1900 to 1903.....	4	9,177,496.82	2,352,000.00	6.4%

Another noticeable feature in Table No. 1 is that up to 1879 the total undivided profits exceeded the capital actually paid in.

UNDIVIDED PROFITS IMPROPERLY DEDUCTED BY MR. REYNOLDS, DISCUSSED IN CONNECTION WITH LEGISLATIVE AND LEGAL EXPENSES AT TIME OF ADOPTION OF NEW CONSTITUTION.

Regarding the \$988,999.19 of Undivided Profits, which Mr. Reynolds improperly deducted, and which we maintain should remain to the credit of the stockholders, it is fair to presume that a considerable portion went in the financing of the legislative and legal campaign entered into by complainant at about the time of the adoption of the new Constitution. Items covering this expenditure do not appear in the books, and doubtless they are contained in the *missing cash books* previously alluded to. The following extract from the Minutes, Book "C," pages 230-1, under date of July 15, 1881, shows that heavy expenditures by the President in litigation were authorized by the Directors:

"On motion of Mr. Mayne and seconded by Capt. El-dridge, the following was offered:

"Whereas, the past seven years in the history of this Corporation, has been one of constant struggle for the protection of its interests and the defence of its rights, during which time it has been involved in an unusual amount of expensive litigation.

"And Whereas: during the entire administration of Mr. Howard as President, he has with the knowledge and ap-

proval of the Board of Directors and since September, 1877, under express resolution of said Board been given a very large discretion in the matter of the payment of such sums, as he should deem necessary for legal expenses.

"And it appearing that all expenditures so made by Mr. Howard have been all under the advise of counsel, and the Secretary, Wm. Norris, having examined the accounts of such expenditures for the entire period and found them correct.

"Now therefore: Resolved, that it is the sense of the Board that under the circumstances such expenditures were necessary and proper and made in and for the best interest of the Corporation and the action of Mr. Howard as President in making the same is hereby ratified and approved.

"The above preamble and resolution on motion of Mr. Mayne and seconded by Capt. Eldridge was adopted by the Board."

The following quotation from Mr. Wenzelburger (Exhibit No. 100, p. 27) shows a belief by that witness that a considerable portion of these legal expenses was included in General Expense Account:

"Examination of the General Expense Account (Profit and Loss schedules) shows violent fluctuations in certain years. For instance, though the normal General Expense is between \$1,000 and \$2,000 per month, during the early eighties it was often far in excess of that, many months running into tens of thousands of dollars, and in one instance, June, 1883, exceeded \$100,000. The details of many of these heavy charges are in the missing Cash Books, but from the notes made in the schedules it will be seen that many thousands of dollars of this extraordinary expense was for 'Legal Expenses and Fees to C. N. Fox' and others."

The following appears in the Minutes of Complainant, Book "C," pages 206-7, under date of October 1, 1880, regarding a big sum paid the President for valu-

able services, applied as increase of back pay for nearly six years previous:

"On motion of Mr. Dobinson, seconded by Mr. Forbes, it was Resolved, that Whereas, in view of the valuable services rendered this company by the President Chas. Webb Howard, since the assumption of office by him on the 15th of December, 1874, and in fact of the inadequate amount received by him, therefore it is resolved that this board allow and pay him the sum of (\$25,419.84) Twenty-five thousand four hundred and nineteen 84/100 dollars as additional compensation over and above the amount drawn by him up to the 1st of October, 1880—and it is further resolved, that from and after the 1st of October, 1880, the salary of the President of this Company be fixed at One thousand dollars per month. Carried unanimously."

Mr. Wenzelburger deals with this in Exhibit No. 100, page 27, in the following terms:

"President Howard received as a salary from 1874 to 1880, \$416.66 per month. On October 1st, 1880, said salary was raised to \$750 per month from December 15, 1874, to January 1, 1880, and \$1,000 per month from January 1, 1880, to October 1, 1880. The difference between what he had received, \$416.66 per month, and the amounts \$750 and \$1,000 per month, was paid in October, 1880, and aggregated \$25,419.84. The salary was continued at \$1000 for a while longer but in 1886 it was down to \$600 per month, later was raised until it reached \$833.33 per month, and has stayed at that figure."

Mr. Wenzelburger also calls attention to the fact that a large sum was withdrawn from the cash account of complainant and subsequently returned without ex-

planation. His comment upon this transaction is found in Exhibit No. 100, page 12, and is as follows:

“Cash returned, \$206,495.05, credit. This credit is made up of two amounts appearing in New Construction Account, September 30, 1898, viz: \$1,500 and \$204,995.05. The original entries in the Cash Book of that time simply say ‘Cash Returned,’ without a word of explanation of where the sums came from, why they were paid in, or what they represent.”

MR. ADAMS' TABLE ON DIVIDENDS AND INTEREST.

Mr. Adams, at page 5295 of his testimony, submitted a table entitled, “Determination of the Rate of Interest upon the Cost of the Property represented by the money paid for Interest and Dividends by the Spring Valley Water Company” (referred to on page 126 of complainant's brief). This table runs from December 31, 1879, to 1899, the cost at the first named date being given as \$18,840,202.00, made up as follows (p. 5295):

Cost of Property to December 31, 1879, according to Exhibit before Board of Supervisors	\$13,168,693.00
Interest Loss from Lack of Revenue.....	5,671,509.00
	<hr/>
	\$18,840,202.00
	<hr/>

The first item of cost of the property at December 31, 1879, given as \$13,168,693.00, is entirely at variance with the books of complainant. As previously stated,

in the discussion on the cost of the property as shown by the books, the General Construction Account, which covered all expenditures on construction and property account to 1879, is given by both Mr. Reynolds (Exhibit No. 111) and Mr. Wenzelburger (Exhibit No. 101, page 35) as \$9,833,361.24. There could not be a more reliable authority on the cost of the property than the Construction Account in the company's books, and therefore the figure in Mr. Adams' table on this point is indisputably in error. This error was made by following an exhibit filed before the Board of Supervisors in 1880 instead of the books of the company (Adams, p. 5238). The above Construction Account figure is amply proved by the fact that the total invested up to 1879 was \$9,607,868.30, made up as follows:

Capital actually paid in (column 3 of Table No. 1) .	\$3,501,825.96
Undivided Profits put into the Works (column 5 of	
Table No. 1)	3,991,228.70
Cash received on Bonds.....	2,114,813.64
	<hr/>
	\$9,607,868.30
	<hr/>

Touching the second item of interest loss from lack of revenue, Table No. 1 shows that down to 1879, the stockholders received in dividends and undivided profits an amount of \$11,875,595.78 (Column 11) on total cash contributions by them of \$3,501,825.96 (Column 3), representing excess profits over what they would have earned at savings bank rates of \$1,435,923.83 (Column 19) and suffered a net loss of \$69,-

583.79, as against what they would have received had the money been invested at rates of interest paid by the company on its own loans (Column 22). If Mr. Reynolds' figures in Exhibit No. 107 had made it possible to include in Table No. 1 the \$988,999.19 of undivided profits erroneously deducted by Mr. Reynolds, the excess of profits over savings bank rates would have been correspondingly increased, and the loss as compared with rates of interest paid by company on its own loans would have been changed into a substantial profit. It being abundantly proved therefore that complainant did not sustain any interest loss from lack of revenue, we eliminate this item from Mr. Adams' table, substituting for the \$18,840,202.00 given by Mr. Adams as the cost of the property to 1879, the total of the General Construction Account, namely, \$9,833,361.24.

We have prepared Table No. 2 in reply to Mr. Adams' table, and to show that Mr. Adams' statement, as follows, was incorrect (p. 5294) :

"The table shows that the greatest rate of interest represented by the dividends and interest paid in any year amounted to 4.8 per cent. The least amounted to 2.4 per cent, and the average was almost exactly 4 per cent."

Table No. 2 gives the following results based on figures from the financial experts, Messrs. Reynolds and Wenzelburger, on the cost of the whole of complainant's properties, both not in use as well as in use and useful:

Greatest Rate of Interest, 9.3 per cent.

Least Rate of Interest, - 4.2 per cent.

Average Rate of Interest, 6.6 per cent.

TABLE No. 2.

Showing Rate of Interest upon the Cost of the Whole of Complainant's Property (not in use, as well as in use and useful) Represented by Dividends, and Interest on Bonds and Floating Debt, 1879 to 1899.

ADDITIONS TO PLANT.				TOTAL COST.		DIVIDENDS AND INTEREST PAID.					Interest rate on Cost without Allowance for Depreciation.							
Year.	Mr. Adams' Table.		Page.	Mr. Adams' Table.		Mr. Wenzelburger's Exhibit No. 101.		Dividends and Interest Paid (Mr. Adams' Table).		Dividends (Mr. Reynolds' Exhibit No. 104).		Coupons on Bonds.		Interest on Floating Debt.		Total of Dividends and Interest.	Mr. Adams' Table.	Our Figure.
	\$	\$		\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$				
To Dec. 31,	\$	\$		\$18,840,202.00	\$ 9,833,361.24	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	
1879	62,628.00	101,057.44	45	18,902,830.00	9,934,418.68	907,557.00	640,000.20	271,149.51	225.69	8,603.33	911,375.40	4.8%	9.1%					
1880	72,148.00	70,938.87	48	18,974,978.00	10,005,357.55	883,915.00	640,000.20	243,570.00	10,520.93	892,173.53	892,173.53	4.6%	8.9%					
1881	51,688.00	51,687.95	50	19,026,666.00	10,057,045.50	889,021.00	640,000.20	233,640.00	8,603.33	884,161.13	884,161.13	4.7%	8.8%					
1882	1,050,086.00	1,050,085.94	53	20,076,752.00	11,107,131.44	486,033.00	213,333.35	238,500.00	34,199.79	486,033.14	486,033.14	2.4%	4.3%					
1883	932,464.00	138,835.92	55	21,009,216.00	11,245,967.36	667,740.00	364,288.00	238,500.00	64,951.65	667,739.65	667,739.65	3.2%	5.9%					
1884	881,406.00	157,377.16	58	21,890,622.00	11,403,344.52	857,254.00	540,000.00	292,699.20	48,189.89	880,889.09	880,889.09	3.9%	7.7%					
1885	652,575.00	1,845,993.68	65	22,543,197.00	13,249,338.20	899,878.00	598,239.50	269,580.00	32,055.64	899,875.14	899,875.14	4.0%	7.6%					
1886	1,257,982.00	135,867.29	70	23,801,179.00	13,385,205.49	920,088.00	600,000.00	294,930.00	25,192.92	920,122.92	920,122.92	3.9%	6.8%					
1887	2,723,251.00	582,413.85	73	26,524,430.00	13,967,619.34	1,043,258.00	600,000.00	331,060.00	62,197.85	1,043,257.85	1,043,257.85	3.9%	7.4%					
1888	388,216.00	246,938.60	78	26,912,646.00	14,214,557.94	849,267.00	100,000.00	453,500.00	45,766.97	599,266.97	599,266.97	3.1%	4.2%					
1889	637,454.00	1,818,555.22	84	27,550,100.00	16,033,113.16	1,227,236.00	966,222.23	463,500.00	63,735.67	1,493,457.90	1,493,457.90	4.5%	9.3%					
1890	683,197.00	298,781.68	91	28,233,297.00	16,331,844.84	1,169,949.00	635,000.00	478,660.00	51,136.80	1,164,796.80	1,164,796.80	4.1%	7.1%					
1891	235,337.00	3,128,432.24	96	28,468,634.00	19,460,277.08	1,189,340.00	660,000.00	491,404.80	37,935.27	1,189,340.07	1,189,340.07	4.2%	6.1%					
1892	327,342.00	802,422.62	104	28,795,976.00	20,262,699.70	1,206,131.00	663,500.00	498,500.00	44,130.75	1,206,130.75	1,206,130.75	4.2%	5.5%					
1893	367,782.00	365,895.46	117	29,163,758.00	20,628,595.16	1,230,183.00	702,000.00	498,500.00	29,683.42	1,230,183.42	1,230,183.42	4.2%	5.9%					
1894	485,910.00	432,739.44	133	29,649,668.00	21,061,334.60	1,244,738.00	711,000.00	498,500.00	35,238.14	1,244,738.14	1,244,738.14	4.2%	5.9%					
1895	432,378.00	225,056.62	151	30,082,046.00	21,388,391.22	1,219,923.00	679,062.50	498,500.00	41,761.68	1,219,924.18	1,219,924.18	4.0%	5.7%					
1896	727,957.00	253,806.23	166	30,810,003.00	21,640,197.45	1,310,405.00	778,000.00	498,500.00	33,905.42	1,310,405.42	1,310,405.42	4.3%	6.0%					
1897	1,174,973.00	990,735.05	181	31,984,976.00	22,630,932.50	1,305,129.00	766,000.00	508,666.68	29,962.37	1,305,129.05	1,305,129.05	4.1%	5.7%					
1898	708,430.00	881,194.20	193	32,693,406.00	23,512,126.70	1,296,282.00	716,800.00	557,388.88	22,092.93	1,296,281.81	1,296,281.81	4.0%	5.5%					
1899	\$13,853,204.00	\$13,678,765.46		\$32,693,406.00	\$23,512,126.70	\$20,802,727.00	\$12,213,946.18	\$7,909,249.07	\$721,487.11	\$20,844,682.36	\$20,844,682.36	4.0%	6.6%					

SUMMARY OF FIGURES ON COST, INVESTMENT AND PROFITS.

COST OF COMPLAINANT'S PROPERTIES NOW
IN USE, DERIVED FROM CONSTRUCTION
ACCOUNT:

Mr. Reynolds (p. 92 of this brief) . . .	\$22,270,687.70
Mr. Wenzelburger (p. 92 of this brief)	22,279,689.23

TOTAL INVESTMENT:

Actual contributions by stockholders..\$	9,177,496.82
Undivided Profits—not drawn.....	3,991,228.70
Cash received from sale of Bonds....	13,530,292.55
	\$26,699,018.07
Less cost of properties not in use.....	4,645,444.09

Total investment in properties now in use (p. 172 of this brief)	\$22,053,573.98
---	-----------------

TOTAL PROFITS DERIVED ON ABOVE INVEST-
MENT FROM INCEPTION OF COMPANY

(1858-60) TO JANUARY 1, 1904 (P. 187 OF THIS BRIEF)	\$27,517,657.77
--	-----------------

MARKET VALUE OF STOCKS AND BONDS OF
 COMPLAINANT, TOGETHER WITH FLOAT-
 ING DEBT (1904), AFTER DEDUCTION FOR
 PROPERTIES NOT IN USE (P. 182 OF THIS
 BRIEF)\$22,109,699.36

THE CLOSE AGREEMENT OF THE COST FIGURES, BOTH
 FROM THE CONSTRUCTION AND INVESTMENT ACCOUNTS,
 WITH THE MARKET VALUE OF THE STOCKS AND BONDS,
 IS REMARKABLE.

IT IS ALSO NOTICEABLE THAT FROM AN ACTUAL CASH
 INVESTMENT OF ONLY \$9,177,496.82, THE STOCKHOLD-
 ERS HAVE DERIVED A TOTAL PROFIT OF MORE THAN THREE
 TIMES SUCH INVESTMENT, AND STILL HAVE A PROPERTY
 WHICH THEY CLAIM IS OF A VALUE OF FROM \$40,000,000
 TO \$70,000,000!

ESTIMATES OF PRESENT VALUE OF COMPLAINANT'S PROPERTY.

The preceding discussion has been directed solely to the cost of complainant's properties as shown by the construction accounts contained in complainant's books, the investments of stockholders and bondholders, and the rate of dividends and profits derived from such investment. Such figures furnish what defendants believe to be the best basis (other than the sale price paid therefor—discussed hereafter under title of "Best Evidence of Value") for determining the value of complainant's properties.

The evidence submitted by the complainant is directed mainly to estimates of the present value of such properties as estimated by expert witnesses. We now direct our inquiry to such estimates. For this purpose the properties of complainant are divided as follows:

- (1) Structural Properties.
- (2) Lands, Water Rights and Rights of Way, including the bases of estimates thereon and various matters connected with such bases of valuation.
- (3) Alleged Intangible Values.

For the purpose of presenting in convenient form the various estimates of the different witnesses as to the present value of complainant's properties, three comprehensive tables have been prepared.

Table No. 3 covers all the structural properties of

cies and 5% for interest
ing construction), and the
rage of Messrs. Adams'
Schuyler's estimates,
ch do not include any per-
tage additions. To ob-
the net difference, the
rage of Messrs. Adams'
Schuyler's percentage
itions (\$2,029,497) must
educted, leaving balance
\$2,323,375.00.



COST PRICES

1185

00'
.00'
00'

IN
00'
00'
00'
00'
00'
00'

Table No. 4

[illegible]

Reservoir lands, 2,340 acres at \$1000 an acre.....	\$2,340,000.
Watershed lands, 17,300 acres at \$100 an acre.....	1,730,000.
Water Rights	600,000 (p. 2308-11).

Reservoir lands, 1350 acres at \$1000 an acre.....	\$1,350,000	(p. 2308)
Watershed lands, 3,800 acres at \$100 an acre.....	380,000	(p. 2308)
Water Rights	1,000,000	(p. 2308)
	<u>\$2,730,000.</u>	

† Land only. Mr. Higgins built the stable for \$18,025.75 (p. 31).
‡ Watershed Lands, Pillaritos, San Andreas and Crystal Springs

** Less Mr. Williams' Estimate of Cost of Grading

TOTAL ESTIMATES ON LANDS, ETC.

Mr. Adams:		\$40,000,000.00 (or) \$45,000,000.00 (p. 4727).
Gave his total estimates at.....		
Deducting from this the following:		
Structural Works (p. 4738).....	\$18,862,445.00	
Goin' Concern (p. 4757).....	\$371,509.00	
Stock on Hand (pp. 5286-8).....	\$19,098.00	
Meters (p. 5286).....	\$59,000.00	
		\$22,112,052.00

We obtain a remainder covering the lands and Water Rights amounting to..... \$17,886,948.00 (or) \$22,886,948.00

Mr. Schuyler:
Arrived at value of Real Estate and Water Rights
by comparison with the proposed Tuolumne \$28,035,000.00

Mr. Hering: _____

Real Estate for Storage Reservoirs, Watersheds and other purposes	\$12,589,900.00
--	-----------------

(p. 3721)	71,65,000 00
Water Rights (p. 3721)	81,65,000 00

Water Rights (p. 3717).....	11,900.00
Rights of Way (p. 3721-2).....	

complainant in detail, with the separate estimates of each witness, the pages of the testimony from which such estimates are obtained, and explanations where necessary.

Table No. 4 gives the lands, water rights and rights

[illegible]

that such pipe forms a large part of all the systems and has an important bearing thereon. After the discussion on pipe, the other structures are referred to in the order given on Table No. 3.

Table No. 5

RECAPITULATION

	MR. SCHUSSLER	MR. ADAMS	MR. SCHUYLER	MR. HERING	MR. GRUNSKY (Jan. 30, 1903)	MR. GRUNSKY (Jan. 26, 1904)	MR. DOCKWEILER	MR. FITZGERALD
Table No. 3.....	\$19,467,000	\$16,062,445 (p. 4738)	\$17,924,806 (p. 5449)	\$19,649,000	\$14,500,830	\$15,076,744	\$13,672,086 (p. 647)	\$17,367,400.19
Table No. 4.....	31,932,000	\$17,886,948 (or) \$22,886,948	28,036,000 (p. 5452)	20,121,900	9,339,559	9,395,968	10,111,304	4,104,243.36
Stock on Hand.....	270,000 (p. 1516)	\$ 219,098 (p. 5286/8)	.....	.....	269,000 (p. 171)	185,500 (p. 192)	270,000 (p. 647)	250,000.00 (p. 433)
Meters.....	.....	160,000 (p. 5286)	.....	.....	.....	.....	.....	.....
Going Concern.....	.....	5,671,509 (p. 4757)	.....	.....	1,400,000 (p. 171)	.....	.....	.....
Intangible Value.....	.....	.....	.....	5,000,000 (p. 3472)	.....	.....	.....	.....
Franchise.....	.....	.....	.....	.....	2,500,000 (p. 171)	.....	.....	.....
Telephones.....	.....	.....	.....	.....	15,000 (p. 171)	15,000 (p. 191)	.....	15,000.00 (p. 433)
Miscellaneous.....	.....	.....	.....	.....	.....	.....	.....	1,000,000.00 (p. 433)
	\$51,669,000							
Less amount deducted on page 184 to get round figures.....	169,000							
Totals	\$51,500,000 (p. 1586)	\$40,000,000 (or) \$45,000,000 (p. 4727)	\$45,960,000 (p. 5452)	\$44,770,900 (p. 3472)	\$28,024,389 (p. 171)	\$24,673,212 (p. 192)	\$24,053,390 (p. 647)	\$22,736,643.55 (p. 433)

complainant in detail, with the separate estimates of each witness, the pages of the testimony from which such estimates are obtained, and explanations where necessary.

Table No. 4 gives the lands, water rights and rights of way in the same manner, with additional data as to the cost figures given by Messrs. Brooks and Dockweiler.

Table No. 5 is a recapitulation of the total figures given on the two preceding tables, with certain additions as to stock on hand and miscellaneous items. Upon this last table appear the total valuations as fixed by the different witnesses.

The tables referred to are here inserted.

STRUCTURAL PROPERTIES.

It is proposed to discuss the structures given on Table No. 3 in detail, with references to the testimony bearing upon each and drawing comparisons with cost figures where obtainable.

The order of structures as given on Table No. 3 is not strictly adhered to in the following pages, in that the discussion of the pipe is placed first, for the reason that such pipe forms a large part of all the systems and has an important bearing thereon. After the discussion on pipe, the other structures are referred to in the order given on Table No. 3.

WROUGHT IRON PIPE.

Mr. Schussler based all his estimates for wrought iron pipe on the weight of the pipe, and used a unit of 10.6 cents a pound on all pipe lines, viz: Pilarcitos (pp. 785-6), San Andreas (p. 870), Crystal Springs (p. 989), Alameda 36 inch (p. 1165), and Alameda 54 inch (p. 1202), regardless of the different grades of the iron in the several pipe lines, or the diverse conditions governing the manufacture and laying of same. The only exceptions to this unit of 10.6 cents a pound are those portions, which were laid on trestles, of the Crystal Springs and Alameda 36 inch pipe lines, and on which Mr. Schussler estimates a saving over laying in the ground of two cents a pound giving the unit at 8.6 cents per pound (pp. 988-9, 1165).

Mr. Schussler merely gave the unit of 10.6 cents per pound on each pipe line, stating at various points in his testimony (pp. 780, 869-70, 988, 1163), that at a later stage he would supply the details making up this amount. The following from Mr. Schussler's testimony indicates that the Alameda 54 inch pipe, which will be shown later to have been built of a higher grade of iron than any of the other pipe lines and with a more expensive and extravagant construction, was

selected by Mr. Schussler as the basis for all his estimates on wrought iron pipe:

"I have stated heretofore that during the construction of the 54-inch pipe—the new Alameda pipe line—we have had some late experience as regards the cost of construction of the pipe line work nowadays with the schedule of wages that is now maintained, and also what is called a day's work at present during the year 1903-4. I have stated that I would go into detail in connection with the construction of this pipe line, and thus establish, by comparing it with some of the other pipe lines, the fact that this pipe, constructed in the extreme thorough manner that we insist upon, constructed of first-class material and of the very best workmanship, with every precaution taken against rust, accident or interruption of supply; I shall give the data which gives me the cost per pound of plate iron used in the construction of these pipes" (p. 1163).

And:

"In my testimony heretofore given, I have estimated our wrought-iron large pipe lines at the standard price of 10.6 cents per pound, exclusive of 10% for incidentals and contingents—engineering, superintending, and other expenses. This 10.6 cents per pound is the average cost of this kind of pipe placed in the ground complete, with the water turned on ready for service and in service, under full pressure" (p. 1199).

Mr. Schussler then enumerated in great detail all the work in connection with the making and laying of a pipe line up to its completion (pp. 1199-1201), and continued:

"In short, the price that I have mentioned of 10.6 cents per pound includes the cost of the pipe per pound of plate iron used in the construction of this pipe, which means not only the plate iron used in the construction of the main body of the pipe, but also the strap iron which is used at curves and elbows, which strap iron is of a higher grade of iron, which we call flange iron" (pp. 1201-2).

Mr. Schussler followed this with his estimate on the Alameda 54 inch pipe line and the details of what purports to be the cost of this pipe line (1203-7). After which he made this statement:

"This work, having been done mostly in 1903, when the conditions of prices of labor and the length of the day's work were as they are now, gives us the best criterion that we have of the exact cost for the whole, or the cost per pound of similar work" (p. 1207).

A summary of the details supplied by Mr. Schussler on the cost of the Alameda 54 inch pipe is given in Table No. 6 following:

TABLE No. 6.

DETAILS OF MR. SCHUSSLER'S UNIT OF 10.87 CENTS PER POUND ON THE ALAMEDA 54-INCH PIPE LINE, USED BY HIM AT 10.6 CENTS IN HIS ESTIMATES ON ALL THE WROUGHT IRON PIPE OF THE SPRING VALLEY WATER COMPANY.

ITEM.	Cost.	Unit per lb. (arrived at by dividing cost by total weight of 3,005,000 lbs.).	Page.
3,005,000 pounds of plate and flange iron	\$146,500.00	4.87c	1203-4,
60 tons of rivets.....	5,000.00	.17	1204
Manufacturing and laying pipe, including extra fittings	102,000.00	3.39	1204
Dipping of Pipe—			
Asphaltum, coal tar, use of dipping machinery, etc.	\$7,644.00		
Labor, including loading on to cars	4,695.00		1204-5,
	12,300.00	.41	2703
Freight from San Francisco to Millbrae, including loading on to the cars....	5,000.00	.17	1205
Haulage to trench, digging of ditch, cutting of joint holes and filling trench..	56,000.00	1.86	1205-6
		10.87c	1207

This Mr. Schussler used at 10.6 cents in all his estimates on wrought iron pipe, and therefore the individual items making up this unit are used throughout. In order to ascertain the bearing this would have on the different pipe lines, we will proceed to deal with each item seriatim.

PLATE IRON: MR. SCHUSSLER'S UNIT IN TABLE NO. 6,
4.87 CENTS PER POUND.

Superior Quality of Alameda 54-inch Pipe.

Mr. Schussler is very eloquent throughout his testimony on the special manufacture of the Alameda 54 inch pipe, of which the following will serve as a sample:

"XQ. 3143. Could you give us any copy of the specifications that you used for any one of these large pipes?

"A. Yes. I gave Mr. Dockweiler voluntarily a specification which I finally adopted for the last 54-inch pipe that the Alameda pipe line was made of. In drawing the specifications originally for the 54-inch pipe here, the iron manufacturers in Pennsylvania accepted our terms, but when they found that they could not get the charcoal blooms exactly of the sizes that I specified, they sent me word that there was some difficulty about procuring the blooms in the manner and of the dimensions and exactly adhering to the method of making; I then went on to Pennsylvania and stayed in the rolling mills there with the inspector I had in charge; he is a superior man, a man who has charge of the Millbrae pumping station, a man of great experience in the practical rolling of iron, and a man who is very rigid in his inspection. We made several small rolls while I was there, and also tested the iron that was produced by the slightest modification in the method of piling. We finally produced a quality of

iron which was even superior to the iron that I had demanded, so that the tensile strength, the elongation, the elasticity was fully up to my original requirements, and in some cases exceeded it, and we then and there settled our difficulties and differences, I having been fully authorized to do so by the Board of Directors of the Company. The result was we got a magnificent lot of iron for the 54-inch pipe" (p. 2277).

In connection with the superior grade of the Alameda 54 inch pipe, Mr. Adams testified:

"XQ. 1563. What did you use as your cost per pound of the new Alameda 54-inch pipe?

"A. 10.6 cents.

"XQ. 1564. Why did you adopt that?

"A. I adopted that after a study of the evidence of Mr. Schussler in regard to the actual cost of laying this pipe and after a consideration of the known cost of laying some other large riveted pipes, as I have heretofore detailed in my evidence.

"XQ. 1565. It differs from your rate found on the other pipe lines, does it not?

"A. Yes, at least on most of the others.

"XQ. 1566. Why?

"A. According to Mr. Schussler's description, as I remember it now, he used a higher grade of material in this particular pipe than on most of the others, a grade of material which cost more than the others. If I remember correctly, 10.6 is about the price which he uses as being the actual cost, or stated as being the actual cost, of this pipe. It was a pipe which was but recently laid—a few years ago—and that fact, of course, would have weight in determining the probable investment in this line.

"XQ. 1567. It was not laid since 1903, was it, or during 1903?

"A. No. I think it was laid just about that time, or just prior thereto. I think his evidence will give the exact date, but I have not it in mind now.

"XQ. 1568. If his estimate of 10.6 is a proper estimate for this 54-inch pipe line, and this pipe line is of a quality higher than the others, then his estimate of 10.6 on the others is too high, is it not?

"A. I can not pass upon Mr. Schussler's evidence as to the probable cost of replacing those pipes as of this time.

"XQ. 1569. Does not that necessarily follow? You state that the reason why you put it at 10.6, where you put others at a lower cost, is on account of the extra quality of this pipe; if the others are of an inferior quality it must follow that the others have been estimated too high, does it not?

"A. Well, I have used a different figure" (pp. 5252-3).

Plate Iron for San Andreas Pipe.

In the following extracts, Mr. Schussler emphasized the superior quality of the Alameda 54 inch pipe, particularly in comparison with the San Andreas pipe:

"XQ. 3140. You have made your estimates on all of the pipe everywhere as to first-class pipe, have you not?

"A. I beg your pardon; I have made an estimate of the pipe of such iron as was in that specific pipe; so that, for instance, the average price of the iron used in the San Andreas pipe line is considerably below the price of the iron used in the 54-inch pipe" (pp. 2274-5).

And:

"The San Andreas pipe that I mentioned just now, from 44 inches down to 30 inches, averages here now, as closely as it can be estimated, and inclusive of freight, 4 cents per lb., while the 54-inch Alameda pipe, which is the highest grade of iron that we have and which we shall try hereafter only to introduce into all of our works, because, although a little dearer, is by far the cheapest in

the end; of that we have imported 3,005,000 lbs., and that costs us delivered here 4.87 cents per lb. It shows the great variation in the price of iron owing partly to the state of the market in the East and partly to the variation in the methods of manufacture, as I have tried to detail heretofore.

"XQ. 3141. All your pipe is specially manufactured, is it not?

"A. Not all, no sir. There was some iron that we bought when we had to quickly make a piece of pipe, small pieces; we sometimes buy iron. The main pipes are specially manufactured for us.

"XQ. 3142. And there is no such pipe as that in the market at all, is there?

"A. No, sir. It is very difficult for us to get the rolling mills started on work of this kind. When we want a small order of our Spring Valley standard iron pipe we have great difficulty in getting it, but when we give a big order, then they get ready in their mills to make it" (p. 2276).

In the above and also in the following, Mr. Schusler fixed an average of 4 cents a pound on the plate iron for the San Andreas pipe, which he stated he used in his estimate, whereas the figure employed by him was 4.87 cents per pound, as set out in Table No. 6. He also stated the value of the 44 inch pipe at 3 cents a pound and the 30 inch at $4\frac{1}{4}$ cents a pound.

"The iron that we used for the 44-inch San Andreas pipe is worth about 3 cents a lb. The average iron that we used for the 44-inch San Andreas pipe, where we crossed underneath the railroad, is worth in the East now $4\frac{1}{4}$ cents a lb. Then the iron that we used in the old San Andreas 30-inch pipe line, the 39,300 feet which was left in of the old original pipe, that is worth now in the East about 3.9 cents a lb. For that iron we paid at that time between 5 and 6 cents a lb., if I recollect right. It was

imported from Scotland. Taking the 3.9 cents per lb. now in the East and adding to it $\frac{3}{4}$ of a cent per lb. for freight out here, it would bring that, delivered here now, to about 4.65 a lb. Then there is another piece of extra iron pipe that I have quoted only at 3 cents a lb. Summing up, the entire San Andreas pipe line, beginning at the inlet at the San Andreas screen-house and going through the various sizes from there, 44 inches in diameter until it finally lands in San Francisco with the original Scotch iron pipe, 30 inches in diameter, I have an average price of 4.06 lb. as the cost now, as near as it can be figured out. That is inclusive of freight from the East to San Francisco. That 4.06 cents I have rounded off to 4 cents a lb., and have inserted that in my estimate of the value of the San Andreas pipe" (pp. 2275-6).

The conclusion to be drawn from the above was that the San Andreas 44 inch pipe was inferior in quality to the 30 inch, but at another point in his testimony Mr. Schussler testified that the total length of the 30 inch pipe was originally about 65,300 feet (p. 2186), of which 39,300 feet is still in existence (pp. 869, 2186). The remaining 26,000 feet was replaced by the new 44 inch and 37 inch pipe, which took a different route and measured 30,230 feet (p. 2186). This replacement of a portion of the 30 inch was necessitated through constant trouble and necessity for repairs, owing to the lightness of the iron, and on this subject Mr. Schussler testified:

"So that of the 26,000 feet there is accounted for in my inventory of January 1st, 1905, and in the pipe laid on the Lake Merced drainage system, about 20,000 feet out of the 26,000 feet. Of the remaining 6,000 feet a portion of that has been taken up in former years and used for road culverts and other purposes, but I do not know how much;

the rest of it has been left in the ground and abandoned because it is either too expensive to take it up or it is not in a sufficiently good condition to warrant its being taken up, particularly that portion of the pipe which was of the very lightest iron, in the upper portion of the line, that is, in the most southerly portion of the line.

"XQ. 2827. That which you have in your pipe-yard, do you consider that that pipe is useful?

"A. It is useful; it is not as good as new; there is a portion of it that is very good, in splendid condition; then there is another portion, which is the next grade, which is not quite as good, but we are going to use it for pressures which are light.

"XQ. 2828. In testifying before the Board of Supervisors at that time, when you were asked the question, 'Q. Does the necessity exist for putting in the new pumping plant to raise the water from Crystal Springs to San Andreas?' did you you answer as follows: 'A. The necessity existed five years ago that that pipe should be laid, because it was old and the iron was light. At the time the iron was purchased, it came from Scotland and around the Horn, and the ship was damaged and the iron was salt-water rusted, and it has given us a great deal of trouble and caused a great deal of annual repairs account. Finally it got so bad that two years ago I persuaded the directors to lay a larger pipe.' Then the question was asked, 'Q. How many miles of that pipe?' 'A. 27,000 feet.' 'Q. Is that pipe worthless if you take it out?' 'A. Yes; in fact, it is so worthless that we are going to leave it in the ground, let it stay there.' Did you so testify?

"A. That was my opinion at the time, no doubt.

"XQ. 2829. Have you changed your opinion since?

"A. Yes, because when we commenced to take out the pipe we found that so much of it was in good condition. that we could use for these various purposes nearly 4 miles of it—20,000 feet out of 26,000 feet. That pipe has given us a good deal of trouble with breaks and leaks, as I stated, and particularly in the ground where there was alkali in the soil. There was another factor that caused us to lay the new pipe, and that was that we wanted to increase the capacity.

That probably was not stated in that testimony at the time. That was the reason why we did not relay it by a 30-inch pipe, but, instead of that, a 44-inch pipe, which is much larger and much more costly. We are very much pleased to find upon investigation, that so much of that pipe is still in good condition, but the pipe, as a unit, as a whole, giving us a good deal of trouble, was not a fit pipe to keep because we had a great deal of trouble with it. When we dug it up and took out the good portions of it, we found that a large portion of it was useful.

"XQ. 2830. Again, in 1901, in testifying before the Board of Supervisors, referring to that pipe, did you say, 'It would not pay to take it up?'

"A. That is what my opinion was then, yes. That was a report made to me by our foreman, that they had looked at the pipe in various places and they thought it was better to leave it in. I so reported. Since that time I insisted upon having it investigated, and we took up the pipe and found a large portion of it in first-class condition. It was unfit for the purpose for which it was being used at that time because it gave too much trouble; but as most of this pipe has been taken up since my testimony was given in this case, there is but a very small fraction of it in my inventory and in the estimate of cost in this suit" (pp. 2189-91).

Of the San Andreas 44 inch pipe Mr. Schussler testified that 2,020 feet of this pipe was originally in the bed of the Crystal Springs reservoir.

"2020 feet of 44-inch pipe, which was taken up from the original 44-inch Crystal Springs pipe, in the body of the Crystal Springs main reservoir, as I testified before, it is a portion of that pipe. That was taken up, cleaned, recoated with asphaltum and laid, as the upper or most westerly portion of the new San Andreas 44-inch pipe line. We saved money by using it" (p. 2184).

It being perfectly clear from the foregoing testimony given by Mr. Schussler that his unit of 4.87 cents

per pound cannot be substantiated from the record in respect to the San Andreas pipe, it becomes necessary to obtain a fair and equitable basis on which to fix a unit.

When it is remembered that the construction of the San Andreas 44 inch pipe line was commenced in 1897, (the contract with the Risdon Iron Works for the making and laying being dated November 18, 1897, p. 2681), the following extract from the Minutes of complainant, Book "E," under date of October 7, 1897, recording a contract entered into for plate iron at $1\frac{3}{4}$ cents per pound on cars at Harrisburg, becomes of importance:

"The President laid before the board bids for iron plates received from Messrs. Allen & Wood, of Philadelphia, and the Central Iron & Steel Company of Harrisburg, Pennsylvania.

"The following resolution was then offered, duly seconded and adopted, viz:

"Resolved, That the President be and he is hereby authorized to make on behalf of the corporation a contract with the Central Iron and Steel Company of Harrisburg, Pennsylvania, for the purchase of iron plates as they may be required and according to the specifications of the company's engineer, at the price of one and three-quarters cents per pound on cars at Harrisburg" (p. 361).

In confirmation of this figure it can be pointed out that Mr. Schussler admitted, on page 2856, that on one contract an amount of $1\frac{3}{4}$ cents per pound was paid for plate iron in Pennsylvania. The inference to be drawn from Mr. Schussler's statements on pages 2275 and 2276 is that the San Andreas 44 inch pipe was of

a lower grade than either Crystal Springs 44 inch or Alameda 36 inch pipe. The similarity of dates of the minute above referred to and the contract for making and laying of the San Andreas 44 inch pipe leads to the conclusion that the actual contract price for this pipe was as above stated, $1\frac{3}{4}$ cents per pound, f. o. b. cars Pennsylvania. To this figure must be added $\frac{3}{4}$ of a cent for freight (p. 2275), making a cost of $2\frac{1}{2}$ cents delivered in San Francisco. Mr. Schussler's own figure of 3 cents a pound which he gives as the present value of this pipe in the following statement:

"The iron that we used for the 44-inch San Andreas pipe is worth about 3 cents a pound" (p. 2275),

being so near to the cost price, it has been decided to use that unit. For the following reasons, it would seem entirely reasonable and justifiable to use a much lower unit in respect to the 30 inch pipe:

30 inch pipe was made of very thin iron (p. 2628).

30 inch pipe gave a lot of trouble with breaks and leaks (p. 2190).

30 inch pipe had to be replaced (p. 2190).

A portion of the 30 inch pipe so replaced was at one time considered by Mr. Schussler to be so worthless that he did not contemplate taking it out of the ground (p. 2190).

The 44 inch pipe stated by Mr. Schussler to be much more costly than the 30 inch (p. 2191).

However, the unit of 3 cents will be found to have been given later in Table No. 7 at page 239.

Plate Iron for Crystal Springs and Alameda 36 inch Pipe.

With regard to the plate iron for the Crystal Springs 44 inch and Alameda 36 inch pipe lines, Mr. Schussler gave two estimates:

(1). 4.87 cents per pound included in his unit of 10.6 cents (pp. 989, 1165).

(2). 4.6 cents in the following:

"The value of the higher grade iron, for instance, the Crystal Springs pipe, is higher. That iron is worth here 4.6 cents per lb. Of that in the Crystal Springs pipe we brought in 8,655,000 lbs at 4.6 cents per lb., delivered here now; the 36-inch Alameda pipe, of which we imported 10,028,000 lbs., that averages here now 4.6 cents per lb." (p. 2276).

Mr. Schussler's reference above to Crystal Springs iron being of higher grade than other pipe relates to the San Andreas pipe, and yet in the following Mr. Schussler states that the Crystal Springs iron was made and rolled in the same manner as the Pilarcitos and San Andreas pipe:

"I think we have some specifications of iron, made later in Pennsylvania, on the same plan; for instance, the iron made for the Crystal Springs pipe line—the 44-inch Crystal Springs pipe line—was made and rolled in the same manner as the method of making the iron for the original Pilarcitos pipe and the San Andreas pipe.

"XQ. 2671. It was rolled in Pennsylvania?

"A. Yes, sir; the Crystal Springs pipe was largely rolled in Pennsylvania, I think. I do not remember now the name

of the firm. It was contracted for with a firm here called Huntington, Hopkins & Co., about the year 1884—some 21 years ago” (p. 2152).

Outside of mere estimates, no figures can be found in the record based on cost, that run so high as Mr. Schussler’s estimates of 4.6 cents and 4.87 cents. It should be possible to supply cost figures from the account books of complainant, but during the years 1883, 1884 and 1885 (the period of construction of the Crystal Springs Pipe Line), details of cash items totaling \$350,000.00 are not available, owing to the missing Cash Books previously discussed (see Mr. Wenzelburger’s Exhibit No. 101, pp. 52-4). The second, and only other, reference in the Minutes to contract for purchase of plate iron for wrought iron pipe, wherein the consideration is specified, is that given in Book “E,” under date of December 9, 1897, in connection with the force pipes at the Millbrae pumps, as follows:

“The President stated to the Board that in accordance with the authorization given him at the regular meeting held November 26th, he had completed arrangements to purchase 7,700 feet of plate iron for the force pipes of the new pumps at Millbrae from the Central Iron and Steel Company of Harrisburg, Pennsylvania, at $2\frac{1}{4}$ cents per pound. On motion, duly seconded, the action of the President was approved” (p. 380).

The above cost price, with $\frac{3}{4}$ of a cent for freight added, would make 3 cents per pound delivered in San Francisco, the figure used on the San Andreas pipe.

Testifying on February 25, 1905, Mr. Schussler gave the present cost of iron (with the exception of the higher grade, such as Alameda 54 inch), as 2.5 cents a pound in Pennsylvania (p. 2856), which, with $\frac{3}{4}$ of a cent for freight added, is equal to 3.25 cents a pound delivered in San Francisco.

This figure of 3.25 cents a pound delivered in San Francisco is also given by Mr. Grunsky in his estimates on the pipe lines for the Tuolumne System, as the following extracts from his testimony show:

"The main item of cost for all Sierra Nevada projects is that of pipe construction. The best quality of laminated iron has been assumed the requisite and has entered into the calculations at 3.25 cents per pound, San Francisco delivery" (p. 416), Quotation from his Progress Report to Board of Public Works, August, 1901).

And:

"XQ. 540. In making that estimate, you said that it was 'delivery at San Francisco,' did you?"

"A. Yes, sir.

"XQ. 541. Was that delivery of the sheets, the plates?"

"A. The delivery of the plates at San Francisco" (p. 417).

And again:

"XQ. 283. When you estimated this pipe at $3\frac{1}{4}$ cents per lb., delivered in California, did you have any bids on the pipe?"

"A. I have information from the Allen Wood Company that iron of the quality which they manufacture could be furnished at 2.50 cents per lb.

"XQ. 284. There?

"A. There.

"XQ. 285. And how much did you allow for freight?

"A. $\frac{3}{4}$ of a cent.

"XQ. 286. The Allan Wood iron is what is known as the ordinary commercial iron, is it not?

"A. But it is iron of high grade. It is an iron that is recognized as of the best.

"XQ. 287. Is it a homeogeneous iron?

"A. It is manufactured in the ordinary way in which iron is manufactured, but with care in the selection of materials. I have always said that their iron was of unusually good quality. I made iron the basis of this cost estimate, although at the time I thought it probable that if this work was ever carried out these pipes would be made of steel. Steel is being generally adopted by engineers throughout the country at the present time for such purposes" (pp. 373-4).

Mr. Grunsky's opinion of the quality of Allen-Wood iron was, it would seem from the following, shared by Mr. Schussler:

"XQ. 5169. . . . Have you any contract for the making of the iron for the Crystal Springs pipe line?

"A. No, sir; I have not. I have this much knowledge, however, that I went on to Philadelphia and made a lot of experiments in Allen Wood's rolling mills as to the rolling of pipe. That was as far back as 1881. I made a lot of experiments in piling the iron and running it out in flat bars and cutting it and piling it again. That was the basis of the contract that was afterwards let for the making of the iron for the 44-inch pipe" (p. 2811).

The only other reference to cost of plate iron for wrought iron pipe to be found in the records, is that Mr. Schussler testifying in the spring of 1900 (in the Water Rate Investigation of 1900-01), stated that they had four or five days previously bought iron in Penn-

sylvania at 2.65 cents a pound, which with $\frac{3}{4}$ of a cent for freight, made 3.41 cents per pound delivered in San Francisco. Adding to this one-tenth of a cent for handling made a cost of 3.51 cents in the shop. This price Mr. Schussler stated covered good, first-class iron (pp. 2271-3).

Having regard to the fact that Mr. Grunsky, as before shown, gave a figure on plate iron for best laminated pipe of 3.25 cents a pound, and Mr. Schussler a price of 3.51 cents on what he stated to be good, first-class iron, it is submitted that in using a unit of 3.5 cents per pound for plate iron on both the Crystal Springs 44 inch and Alameda 36 inch pipe, full justice will be done and a fair and equitable figure used. This unit of 3.5 cents will be found inserted in Table No. 7.

There being no cost figure anywhere in the neighborhood of 4.87 cents per pound for plate iron, it is fair to assume that it would be entirely in order to reduce Mr. Schussler's figure for the Alameda 54 inch pipe, but having regard to the fact that the testimony points to the superior grade of the iron for that pipe, and its special manufacture and construction, and also that Mr. Schussler devotes so many adjectives in eulogy of this pipe, no attempt has been made to alter his basis of estimate in this particular case.

Plate Iron for Pilarcitos Pipe.

Finally, with regard to the Pilarcitos Pipe Line, this is the oldest of the pipe lines, having been constructed during the years 1866 to 1869. No contract

for the making and laying of this pipe (consisting of 22 inch and 30 inch), appears in the record, but in the following extract Mr. Schussler stated that the iron was purchased in Scotland, and that the cost of iron of that kind would be a little less now than the iron at present being used:

"XQ. 2664. Mr. Schussler, referring to the Pilarcitos pipe line, that iron was built in Scotland, was it?

"A. The iron was rolled by the Thornycroft Iron Mills in Glasgow or Greenock; I do not exactly know where the rolling mills were.

"XQ. 2665. How was it brought to San Francisco?

"A. It was brought around the Horn at the time, there being no overland railroad then.

"XQ. 2666. Where did you get your details of the manner in which it was constructed by the special piling and rolling?

"A. According to the specifications which I made out myself. I believe I have heretofore described the method of piling, in my direct examination.

"XQ. 2667. How would you say the cost of iron of that kind compared with the kind of iron you used later in other work?

"A. That iron, I think, would be worth a little less even now than the iron we use now.

"XQ. 2668. That is, you think it would cost less to roll that iron in that special way in Scotland and transport it to San Francisco?

"A. That I could not tell. I have estimated on what that method of making the iron would cost in the East. We do not get any more iron from Scotland since the first San Andreas pipe was constructed. The rolling mills in the East, particularly in Pennsylvania, have been producing our iron for us. The method adopted then of rolling the iron is a little bit cheaper in my estimation than the method we have adopted since, as I had found through experience that a greater number of laminations in the iron would be pref-

erable. We have adopted a somewhat different method of rolling and also composition.

"XQ. 2669. Was that iron manufactured in Scotland by contract?

"A. Yes, sir.

"XQ. 2670. Have you the contract?

"A. I do not think I have, but it is possible that it may be found in the old records" (pp. 2151-2).

Further extracts from Mr. Schussler's testimony given below show that various contracts for making the pipe were entered into, one with an old pipe maker in spite of a protest by Mr. Schussler that it would result in bad work; that about 4 miles of the pipe had to be replaced owing to it not having been chipped and calked; and that there were several breaks at various times in the pipe:

"XQ. 4593. Who had the contract for making the pipe on the Pilarcitos pipe line?

"A. That was in various contracts. The first was let to a man named Martin Pragg; he was a pipemaker, or something of the kind. He had made some pipe for mining purposes, and some of our directors knew about him, and he was the lowest bidder and he got the contract for the first four miles, I think.

"XQ. 4594. How much did he charge? What was the contract price?

"A. That I do not remember.

"XQ. 4595. Is there any record in any of the offices of the company?

"A. That I do not know; possibly your expert book-keepers might find that. I know this, that iron in those days was very much higher than it is now. We had that iron rolled in Scotland—at Thornycrofts—and my conditions as to taking care of it on the trip around the Horn were very rigid, but still a portion of it was salt-water damaged; they

had some trouble coming around the Horn. The metal was very much dearer then than it is now.

"XQ. 4596. Have you any copy of any of the contracts or any details of any of the contracts?"

"A. No; nothing at all" (p. 2665).

And:

"XQ. 712. Outside the first conduit line from Pilarcitos, has there been more than one conduit line constructed from there?"

"A. We built a new one since—the 30 inch pipe line.

"XQ. 713. Have there been only two?"

"A. Yes, sir.

"XQ. 714. Was not the 30 inch pipe line constructed more than once?"

"A. It broke; it had to be repaired.

"XQ. 715. When did it break?"

"A. I do not know; various times.

"XQ. 716. Were they ordinary breaks?"

"A. Yes, in portions of it the ground was alkali and the iron did not do as well as it did in other ground. A portion of that belongs to the maintenance of works.

"XQ. 717. Has that Pilarcitos pipe line ever been in such condition that it had to be practically reconstructed and charged to new construction?"

"A. Not the whole of it, but a portion of it near the School house station gave a great deal of trouble because of leakage, and that was recalked and put in again.

"XQ. 718. How much was that?"

"A. About 3 or 4 miles.

"XQ. 719. About 3 or 4 miles?"

"A. I think so.

"XQ. 720. What was done with the old pipe?"

"A. It was put in again.

"XQ. 721. Was there any fault in construction or fault in the original pipe line that led to that?"

"A. Yes, it was the first pipe line used for city supply. Wrought iron pipe in those days had been used somewhat in mining ventures, and the pipe originally had not been

calked tightly enough, so it was taken up and recalked and put in again, and it has been all right since.

"XQ. 722. So your testimony in regard to the first-class way in which the pipes were laid does not apply to that particular part of it?

"A. It was thoroughly repaired and thoroughly calked a second time, and the balance of the pipe was very perfectly made. We learned by experience.

"XQ. 723. Except that 3 or 4 miles?

"A. Yes, I think it amounted to about 3 or 4 miles.

"XQ. 724. Were there any air-valves in it as originally laid?

"A. Yes, air-valves on the summits and blow-offs in the hollows. The fact that the pipe has lasted ever since is proof that it was very well repaired.

"XQ. 725. But the first laying of it did not last?

"A. It simply leaked somewhat and it got to be a nuisance to the farmers through whose land we laid the pipe. We agreed to pay the damage that any leakage would cause, so it was considered safer to take up that piece of pipe and recalk it, which we did and we made a great success of it.

"XQ. 726. Was the relaying as expensive as the original laying?

"A. I suppose it cost just about the same.

"XQ. 727. It cost a little more, did it not, because you had to take it up?

"A. Yes, but still it was a very valuable thing to have the pipe in very perfect condition.

"XQ. 728. You would not have had to have done that if it was properly calked the first time, would you?

"A. If people would always know right from the start all that they ought to know you might save some money, but everybody has to learn. It was a new thing at the time. Our directors were advised that that would be amply sufficient, and thereupon they took the lowest bidder they could find; it was an old tinsmith here who did it and he did not know anything about hydraulic pipe. He made the lowest bid and he got the job. Although I protested that it would be poor work he had the contract and he put in the pipe. After that when the pipe proved to be leaky I suggested that we

have it taken up and calked up tightly so as to make the same pipe answer the purpose.

"XQ. 729. The company, then, gave a tinsmith the job of calking that pipe?

"A. Well, he was an old pipe maker who had been making thin pipe, and he being the lowest bidder he got the job. I think he gave bonds, too.

"XQ. 730. Did you ever collect anything on the bonds?

"A. I do not know" (pp. 1724-6).

Also:

"XQ. 2757. Have you been able to estimate the amount of that pipe line that had to be taken up on account of not being chipped and calked?

"A. I can come very close to it; I think it is about four miles.

"XQ. 2758. Do you know to what account that was charged, the taking up and the relaying of that pipe?

"A. I do not know, but I have no doubt it was charged either to the Pilarcitos pipe line, Pilarcitos conduit, whichever they call it in the books" (p. 2172-3).

And again:

"XQ. 4590. What size rivets are there on the Pilarcitos pipe line?

"A. They are comparatively small. The original Pilarcitos pipe line, as I stated in my testimony, was the first pipe that was made for this water company—the first pipe of any size. There had been a piece of 22 inch pipe made, but this pipe was made—a portion of it was simply riveted together and not even split and calked. The objection to calking that was urged at the time was that the iron was too thin to stand calking. There used to be an idea that you could only calk and split iron when it was about three-sixteenths of an inch thick or thereabouts. When we found that we had trouble with leakage with the first four miles more or less of the old Pilarcitos pipe, near what is now called Colma, we took up that pipe, as I stated, and calked it thor-

oughly and the pipe has been doing good work ever since. Those rivets are small" (p. 2663).

It is quite obvious from the foregoing testimony that this Pilarcitos pipe was not manufactured or laid in the first-class manner which Mr. Schussler claims for all his pipe lines, and on which he builds up his unit of 10.6 cents a pound complete ready for service.

Mr. Schussler does not make a second estimate on this pipe, nor does he give any figure on which a unit could be based, except in his statements that the iron is worth a little less now than that at present being used, and that the method of rolling was similar to that employed on the San Andreas and Crystal Springs pipes.

Having regard to Mr. Schussler's own admissions of poor construction and necessary replacement, it is considered that the unit of 3 cents per pound applied on the San Andreas pipe would be ample for this Pilarcitos pipe, both as to the 22 inch and the 30 inch, and this unit will be found inserted in Table No. 7.

RIVETS.

MR. SCHUSSLER'S UNIT IN TABLE NO. 6, 17-100 OF A CENT
PER LB.

Mr. Schussler gives the cost of the iron for rivets at $7\frac{1}{2}$ cents per pound (p. 2287), but, with the exception of the Alameda 54 inch pipe line, no details being given as to the weight of rivets used on any of the pipe lines, it is impossible to make any comparison with Mr. Schussler's figure on this item.

MANUFACTURE AND LAYING OF PIPE.

MR. SCHUSSLER'S UNIT IN TABLE NO. 6, 3.39 CENTS
PER LB.

The record shows contracts entered into for the making and laying of the pipe on all the pipe lines with the exception of Pilarcitos, which, as shown previously, was partly made by an old tinsmith who did not know anything about hydraulic pipe (p. 1726). The contracts with the Risdon Iron Works on the Alameda 54 inch and San Andreas 44 inch pipe are incorporated in Mr. Schussler's testimony (pp. 2669-2680, 2681-2694). Contract with the Risdon Iron Works on the Crystal Springs 44 inch pipe appears in the Minutes of the Complainant (Book "C," pp. 384-402), and extract therefrom is given at page 256 of this brief. No contract appears in the record on the Alameda 36-inch pipe, but the terms under which contract was let are given in the Minutes (Book "D," p. 132), and extract appears at page 248 of this brief. In the cases of the Alameda 54 inch, San Andreas 44 inch, and Crystal Springs 44 inch, the price given in the contract covers all work connected with the making and laying of the pipe, with the exception of the dipping and transporting of the pipe, digging of ditch and making of joint holes, which work was done by the complainant (pp. 2675, 2689, 2658-2663, Book "C," of Minutes, pp. 383-402). On the Alameda 36 inch pipe, the price given covers the same work as in the other cases, but, with the exception of the dipping, which was done by the com-

plainant, all other work was undertaken by the contractor at prices separately specified.

All the pipe contracts were entered into at a certain rate per lineal foot, and payment was made on that basis (no mention of payment by weight being made in any of the contracts except that for the Alameda 54 inch). The consideration mentioned, in respect to the straight pipe without the connections, in the contracts on the various pipe lines is as follows:

	Per lineal foot.	Page.	When built.
Crystal Springs, 44-inch	\$3.09 (No. 7 iron)	Book C.	1884-5
	\$3.32 (No. 6 iron)	Minutes, page 387.	
Alameda, 36-inch.....	\$2.066 (No. 9 iron)	Book D.	1887-9
	\$2.482 (No. 7 iron)	Minutes, page 132.	
San Andreas, 44-inch..	\$3.12	2685	1897-9
Alameda, 54-inch.....	\$5.45	2670	1903-4

The above figure of \$5.45 per foot on the Alameda 54-inch pipe appears in the contract together with an equivalent figure of 2.93 cents per pound. This price relates to the straight pipe only. The unit used by Mr. Schussler of 3.39 cents per pound for the making and laying is 46-100 of a cent per pound in excess of the contract price, which would seem to be an extremely liberal allowance for this very heavy pipe. It must be borne in mind that in addition to this Mr. Schussler adds on to the contract price his usual 10 per cent for contingencies in all his estimates. Consideration will show that Mr. Schussler's action in basing the estimates for the other pipe lines on the weight cost of the highest priced pipe was utterly unwarranted and

causes inflated estimates on these other pipe lines. For instance let us compare the San Andreas 44 inch pipe with the Alameda 54 inch, on the basis of Mr. Schussler's own figures:

	Contract price according to Mr. Schussler, including all connections.	Equivalent. per. lb.
San Andreas, 44-inch pipe. .	\$ 99,400 (p. 2668)	2.77
Length—		
26,810 ft. (p. 869)		
Total Weight—		
3,586,430 lbs. (p. 869)		
Alameda, 54-inch pipe.	\$102,000 (pp. 1204, 2667)	3.39
Length—		
16,758 ft. (p. 1202)		
Total Weight—		
3,005,000 lbs. (p. 1202)		

Here, in the case of the San Andreas 44 inch, we have a pipe line, nearly twice as long as the Alameda 54 inch, costing to make and lay much less than that shorter pipe line, and per pound also much less. Yet, regardless of these obvious facts, given in his own testimony, Mr. Schussler saddles the cheaper pipe line, built only three or four years previous to the more costly pipe line, with the heavy pro rata charge per pound of this heavier and more expensive pipe. Similar comparisons could be made in respect to the other pipes, but the San Andreas 44 inch, being of more recent construction, has been selected as the more fitting example, especially in view of the fact that at various places in his testimony (pp. 2651, 2655, 2662), Mr. Schussler cites various improvements, extra fittings and more expensive construction put in on the

two last pipe lines built, namely, the San Andreas 44 inch and the Alameda 54 inch, and which heavy items of expense were not incurred on the other pipe lines. To quote a few of Mr. Schussler's own statements:

"Of the heavy iron, for instance, that we use in the Alameda 54 inch, knowing that the edges of the plates on the inside of the pipe would give a great deal of frictional resistance I had those courses beveled on the inside and it made, no doubt, considerable difference in the flow of water. That has only been done so far on this one pipe—the Alameda 54 inch" (pp. 2655-6).

Also:

"In the last two big pipes we have introduced air-valves also with a shut-off gate. We have automatic vacuum valves that open the moment the pipe breaks and the air flows in. Finding in former years that we might want to repair the air-valve if it leaked we could not do it because we would have to take the water all out of the pipe, therefore, I have introduced a flat bronze or brass gate which is bolted on to a flange on top of the pipe and on to the top flange of this gate is bolted the automatic air-valve or vacuum valve" (p. 2662).

And:

"XQ. 4549. Did you use the concrete saddles on the Pilarcitos pipe line?

"A. No, sir.

"XQ. 4550. On the Crystal Springs?

"A. No, sir. We used them on the 44 inch San Andreas pipe, and on the new Alameda pipe" (p. 2651).

Another item of expense included in the making and

laying of pipe, on which the various pipe lines differ very materially, according to the size of the pipe and the profile of the country through which it passes, is the various connections, and the following figures are supplied with a view to showing the wide range of prices and consequent expenditure on the several pipes:

	Manhole.	Air Valve.	Blow-off.	Strap Joint.	Total Cost of Connections (computed).	Page.
Alameda, 54-inch.....	\$25.00	\$60.00	\$55.00	\$52.00	\$13,954.00	1204, 2679
San Andreas, 44-inch..	25.00	54.00	50.00	34.00	15,160.00	2685, 2668
Alameda, 36-inch.....	15.00	25.00	8.00	.....	5,800.00 (without the joints)	Minutes, Book D, p. 132
Crystal Springs, 44-in..	15.00	20.00	8.00	.....	.....	Minutes, Book C, p. 388

With the exception of the Alameda 54 inch pipe, no details are given in the record of the number of connections. The above figures, however, show that these connections were much more costly in the case of the Alameda 54 inch, and that their total cost in that case was nearly as great as in the much longer San Andreas 44 inch pipe. Therefore no justification can be shown for Mr. Schussler making the same pro rata item on all the pipe lines.

DIPPING OF PIPE.

MR. SCHUSSLER'S UNIT IN TABLE NO. 6, 41-100 OF A
CENT PER POUND.

The following is a summary of Mr. Schussler's detailed charges on the dipping of the Alameda 54 inch pipe:

ITEMS—	Cost.	Page.
Building shed and frestle in yard over kettle to keep rain, etc., off, and to assist in hoisting.....	\$ 325.00	2703
181 tons of asphaltum, at \$15.00 per ton	2,715.00	2703
276 barrels of coal tar, at \$4.20 per barrel	1,160.00	2700, 2703
Firewood—103 cords	1,190.00	2703
Repairing of kettle and extra time.....	116.00	2700
Use of trough and machinery, 17,105 feet at 12½ cents per lineal foot.....	2,138.00	2703
	<hr/>	
	\$ 7,644.00	
Labor—men employed in dipping and handling the pipe and putting it on the cars at the shop.....	\$ 4,695.00	2703
	<hr/>	
	\$12,339.00	2703
	<hr/>	
Rounded off at.....	\$12,300.00	1205

Mr. Schussler divided this total by the number of pounds in the Alameda 54 inch pipe line and arrived at a unit of 41-100 cent per pound. A moment's consideration, however, would show that dipping should be calculated superficially, not by the weight.

With the exception of the above figures no data is given in the record on the cost of materials and labor

employed in dipping the pipes for the various pipe lines except the following testimony by Mr. Carey, who was employed in superintending the dipping for about a year and a half around the year 1880.

"Q. 23. Were you ever engaged in dipping pipe for the water company?

"A. Yes, sir.

"Q. 24. Will you describe in detail whatever work you did?

"A. I was about one year and a half dipping pipe for the San Andreas pipe line and other pipes for other lines. I had eight men and a boy employed dipping pipe. I dipped at the old Risdon Iron Works at the corner of Main and Folsom streets. I dipped it as fast as they could make it, but they could not make it fast enough for me. We worked ten hours a day, and sometimes I could work them at night time. Two men got \$2.50 per day and the rest got \$2.00 a day. I received \$3.50 a day, and the boy got not more than a dollar a day.

"Q. 25. How many feet of the San Andreas pipe could you dip in a day?

"A. Twenty lengths of 20 feet each in a day. I used a dipping trough 22 feet long, horizontal. I dipped it into only one trough. The trough was big enough for only one pipe. I put in half a barrel of gas tar to a kettle full of asphalt. I used about two kettles of dip per day. It had to be cooked in the night time. I had four men cooking, working nights, and four men and a boy helping me dip in the day time. I think I did this dipping in about 1880" (pp. 44-5).

Computation on the figures above shows that Mr. Carey dipped 400 feet of pipe in a day on a pay-roll of \$21.50 per day. Mr. Schussler's item given above for labor on dipping of \$4,695, divided by the 3,005,000 pounds in the Alameda 54 inch pipe, gives 15-100 of a cent per pound, which unit is used all through his

estimates on wrought iron pipe for the labor of dipping, regardless of the fact that the handling of a big pipe like the 54 inch would necessarily entail considerable more expenditure than the smaller pipes, which alone would preclude the use of the same unit of cost. The loading on to the cars at the shop, it will be noted by reference to pages 229 and 235 of this brief, is included in two places,—first, under “Dipping of Pipe,” and second, under “Freight to Millbrae” (pp. 1204-5). The following statement by Mr. Schussler, however, indicates that he intended this charge to be covered by the item for labor on dipping:

“XQ. 4657. That \$4,695.00 you gave there, does that include any handling of the pipe, loading it on the cars, or anything of that sort?

“A. Yes, sir; we have men to take the pipe the moment it is cooled off and roll it off on to the platform and from it on to the cars. When there is no car ready they roll it off on some scaffolding.

“XQ. 4658. Is not that also included in the transportation charges, or is that omitted afterwards?

“A. No, sir; the transportation charge is simply the delivery by the car after it has been loaded. That is the railroad freight to Millbrae” (p. 2703).

As Mr. Schussler's item of 15-100 of a cent per pound for labor of dipping includes the loading on to the cars, it is impossible to make a complete comparison with figures deducted from Mr. Carey's testimony.

Subject to allowance being made for this loading on to the cars, which in the case of the smaller pipe would be very much less than the Alameda 54 inch, the

following comparison is submitted on some of the pipe dipped at about the time at which Mr. Carey was engaged on this work:

	On basis of Mr. Carey's testimony.	At unit of 15-100 of a cent per pound.
Crystal Springs 44-inch pipe	87,260 feet (p. 986) divided by 400, gives in round figures 220 days, which at \$21.50 per day=	8,655,000 lbs. (p. 986)
	\$4,730.00	\$12,982.50
Alameda, 36-inch pipe...	143,150 feet (p. 1164) divided by 400 feet, gives 358 days, which at \$21.50 per day=	10,028,000 lbs. (p. 1164)
	\$7,697.00	\$15,042.00

The huge disproportion between what was undoubtedly the cost of the labor employed in dipping the above pipe and figures based on Mr. Schussler's unit, cannot very well be accounted for by the loading on to the cars, and only goes to prove the unfairness of the basis adopted by Mr. Schussler.

Mr. Carey's simple statement as to putting into the kettle certain proportions of asphalt and gas tar, which was cooked in the night time (pp. 44-5), rather conflicts with the following testimony of Mr. Schussler:

"XQ. 4629. Do you make a mixture for the dipping?

"A. Yes, we have our own expert men.

"XQ. 4630. What else besides asphaltum do you use?

"A. Coal tar.

"XQ. 4631. What proportion of it is asphaltum?

"A. That depends somewhat upon the degree of purity of the asphaltum. We usually break it up in small lumps about the size of your fist, and from that down to the size of a hen's egg and fill the refining kettles with it. Then

we pour a certain proportion of coal tar in it ; it varies somewhat in the judgment of the men. Then the asphaltum is slowly heated and stirred in these round kettles with iron bars until finally the sediment that is in the asphaltum settles to the bottom of these round refining kettles. When the expert man who attends to it wants to find out how near the refining process has proceeded he takes pieces of metal and dips them into this kettle until he is satisfied that it has just the proper consistency. Then the asphaltum is ladled out and poured into a great big trough, of which we have two, as I described before ; in the one we add a little more coal tar than the other. The first bath is more fluid.

"XQ. 4632. About what is the proportion of the first bath?

"A. That I cannot tell you" (p. 2696).

There being no detailed statement of the cost of dipping of the other pipe, it is impossible to compare item by item with Mr. Schussler's statement above on Alameda 54 inch.

The items of building shed and trestle, repairing the kettle and extra time, are undoubtedly special expenses incidental to that particular pipe, but Mr. Schussler lumps them in all the same to obtain his unit.

Mr. Carey testified that, in the dipping of the San Andreas and other pipe, at the Risdon Iron Works, he put in half a barrel of gas tar to a kettle full of asphalt and used about two kettles of dip per day, during which he dipped 400 feet of pipe (p. 44). On the basis of one barrel of gas tar to 400 feet of pipe, Mr. Carey would dip 110,400 feet of pipe with the 276 barrels of coal tar (p. 2703), which Mr. Schussler charges for the 16,758 (p. 1203) feet of the Alameda

54 inch pipe. Allowing for the extra surface area of the last named pipe (computation shows there are 28.3 square feet of surface per lineal foot of 54 inch pipe, inside and outside, as compared with 15.7 square feet per lineal foot of 30 inch pipe), and any other possible consideration, the figures are too widely divergent for any comparison to be made, but they go to show that Mr. Schussler was just as extravagant in his estimate of the cost of the material portion of the dipping as he already has been shown to have been in the labor portion.

Touching the item of use of trough and machinery, \$2,138 (p. 2403), Mr. Schussler testified:

“XQ. 4666. You gave 12½ cents per lineal foot for the use of the trough and machinery?

“A. Yes, sir, for the entire apparatus.

“XQ. 4667. From whom did you get the apparatus?

“A. The Risdon Iron Works. That was the price they demanded for the use of the kettle. They were going to move it or remove it from the place and make us get it at some other place, but finally our directors or the executive committee made this arrangement. It was the cheapest thing for us to do” (pp. 2704-5).

Even supposing this was so for this particular pipe (Alameda 54 inch), why should the other pipe lines be charged with this big item, which clearly was an expenditure necessitated by the conditions existing at the time of the dipping of this pipe. During the year and a half Mr. Carey was engaged dipping pipe in about 1880, at the Risdon Iron Works, he used a dip-

ping trough 22 feet long, horizontally, which was only big enough to dip one pipe in at a time (p. 44).

FREIGHT FROM SAN FRANCISCO TO MILLBRAE,
INCLUDING LOADING ON TO CARS AT SHOP.

MR. SCHUSSLER'S UNIT IN TABLE NO. 6. . . . .	.17c per lb.
HAULAGE TO TRENCH, DIGGING OF DITCH, CUTTING OF JOINT HOLES AND FILLING OF TRENCH. MR. SCHUSSLER'S UNIT IN TABLE NO. 6.	1.86c per lb.
	<hr/> 2.03c per lb.

On these two items the charges on the big Alameda 54 inch pipe, owing to its dimensions, would of necessity, be far in excess of the rate on the smaller pipes; the trench would have to be dug much deeper and so forth. Conditions as between the Alameda 54 inch and the smaller pipes being so different, comparisons of cost are not easy to make.

In connection with a much wider and deeper trench being required for the Alameda 54 inch pipe than for the other pipe lines, it might be well to quote Mr. Schussler as follows:

"Meanwhile a force of men has been digging the pipe-ditch which, in the case of our last 54 inch Alameda pipe had to be nearly 7 feet wide and between 7 and 8 feet in order to place this large pipe at a sufficient depth with a safe margin of material over the top. In some places we had to go even deeper on account of cutting through rounded hills and straightening out the line; in some places it was somewhat shallower" (p. 782).

In Book "D" of Minutes of complainant, at page 132, the following figures appear in connection with the contract with the Risdon Iron Works on the Alameda 36 inch pipe:

"Transporting to and distributing along line, 139,400 feet of pipe at 15.64 per foot.....	\$21,000.00
"Digging 120,400 feet ditch 25.913-1000 per foot	31,200.00
"Filling and ramming 120,400 feet ditch, 17.441	21,000.00
"Digging 4.300 joint holes at \$1.00 each....	4,300.00"

These figures total up to \$77,500.00. The total weight of the pipe laid in the ditch, on the Alameda 36 inch pipe line is given by Mr. Schussler at 8,578,000 pounds (p. 1165), which divided into the contract price of \$77,500.00 would give a unit of .903 cents per pound. A comparison as to the cost of transporting the pipe from San Francisco, distributing along trench, digging of ditch, cutting of joint holes and filling of trench (being the work covered in the two units of Mr. Schussler which are the subject of discussion in this paragraph) would be as follows:

	Total Cost.	Unit per lb.
Actual cost from contract figures in the minutes	\$ 77,500.00	.903c
Cost based on Mr. Schussler's unit obtained from his figures on the Alameda 54-inch pipe, consisting of .17c and 1.86c per lb., and totaling 2.03c per lb.....	174,133.00	2.03c

To the total of \$174,123.00 must also be added the usual 10 per cent for contingencies. As the units of

.17c and 1.86c per pound represent a portion of the unit of 10.6c per pound used by Mr. Schussler in all his estimates on wrought iron pipe, and therefore on the Alameda 36 inch pipe, Mr. Schussler's estimate on this portion of the work on that pipe line is about 150 per cent in excess of the contract cost, and no argument could establish such a method of estimating as adopted by him as equitable.

No detail figures are given in the record on the cost of the transporting and trenching work of the pipe on the other pipe lines, and therefore any comparisons made would have to be based entirely on computations, but if such computations were made, they would of necessity show Mr. Schussler's estimates to be as enormously in excess of cost as in this Alameda 36 inch pipe.

The following testimony by Mr. Schussler is in confirmation of the transportation of the Alameda 36 inch pipe having been undertaken by the Risdon Iron Works, as stated in the Minutes:

"A. The 36 inch Alameda pipe, I believe, was also transported largely by rail except that portion which lies on the trestle through the marsh, particularly that part in Alameda county between Newark and Dumbarton Point. A good deal of that was transported on barges and hauled with tugs to a place near by; then it was landed alongside of the trestle and transported along there and hauled up sideways on to the trestle.

"XQ. 4677. Where was it taken from San Francisco?

"A. It was made at the shop of the Risdon Iron Works which at that time was at the corner of Howard and Beale.

"XQ. 4678. And hauled to where?

"A. Then they hauled it to some wharf at the water front,

not very far from their place, and then they put it on barges, that is, that particular part that was shipped by barges.

"XQ. 4679. And the rest was shipped by rail, was it?

"A. I think it was shipped by rail. I do not remember because it is quite a long time ago. I think it is 18 years ago.

"XQ. 4680. Do you remember how much it cost to transport it?

"A. No, sir; the cost of railroad transportation has not varied very much. It might have been a little dearer formerly, but teaming was a little cheaper, so it is practically an offset" (pp. 2706-7).

In support of the figure given above from the Minutes of 25.913 cents per foot for digging of ditch on the Alameda 36 inch pipe, the following extract from the Minutes, Book "B," dated May 1, 1870, is submitted, showing that a contract for digging part of the original San Andreas pipe line was let at 23 cents per foot:

"The President informed the Board that the contract for digging the ditch of the Bald Hill line had been let at 23 cents per lineal foot" (p. 365).

SUMMARY ON DISCREPANCIES BETWEEN MR. SCHUSSLER'S ESTIMATES ON PIPE LINES AND FACTS SHOWN BY CROSS-EXAMINATION AND MINUTES.

In exemplification of the discrepancies shown in the preceding pages, between Mr. Schussler's estimates and the facts as disclosed by his cross-examination and the minutes, we submit Table No. 7 dealing with about 50 per cent of the construction work on the four pipe lines enumerated, that being the proportion on which data is available.

TABLE No. 7.

Discrepancies Between Mr. Schussler's Estimates on Pipe Lines and Facts Shown by Cross-Examination and Minutes.

	Unit per pound, arrived at in previous pages of this brief and from figures on cost.	Total computation.	Mr. Schussler's unit on basis of Alameda 54-inch pipe. (pp. 1203-6.)	Mr. Schussler's estimate, worked out on this unit and inclusive of 10 per cent.	Difference between Mr. Schussler's estimate and computation.		Difference between Mr. Schussler's unit and unit used in this brief.
					In detail.	Total.	
Crystal Springs 44-inch pipe— 8,655,470 pounds of plate iron (p. 986.)	3.5c (Brief page)	\$302,941.00	4.87c	\$ 463,673.00		\$160,732.00	1.37c
Pilarcitos 22- and 30-inch pipe— 2,823,800 pounds of plate iron (pp. 785-6)	3c (Brief page)	84,714.00	4.87c	151,271.00		66,557.00	1.87c
San Andreas 30, 37 and 44-inch pipe— 5,393,000 pounds of plate iron (p. 869). Making and laying the 44-inch pipe. 26,810 feet, weighing 3,586,430 lbs. (p. 869), including all connections...	3c (Brief page) 2.77c	161,790.00 99,400.00 (p. 2668)	4.87c 3.39c	288,903.00 133,738.00	\$127,113.00 34,338.00	161,451.00	2.49c
Alameda 36-inch pipe— 10,028,000 pounds of plate iron (p. 1164) Transportation of and distributing pipe along trench, digging of ditch, cutting of joint holes and filling of trench (8,578,000 pounds, p. 1165)...	3.5c (Brief page) .903c (Brief page)	350,980.00 77,500.00 (Book D, Minutes, p. 132)	4.87c { .17c } { 1.86c }	537,200.00 191,547.00	186,220.00 114,047.00	300,267.00	2.50c
		<u>\$1,077,325.00</u>		<u>\$1,766,332.00</u>		<u>\$689,007.00</u>	

As already stated, Table No. 7 deals with about 50 per cent of Mr. Schussler's estimates on the four pipe lines, and yet even on this proportion Mr. Schussler is shown to have over-estimated to the extent of \$698,007.00, or more than sixty per cent over our computations of original cost. This amount can reasonably and fairly be deducted from his total estimates.

In the absence of data in the record, it is impossible to work up computations on each pipe line, from the arrival of the plate iron in San Francisco to its being laid in the ground and the filling of the trench, but if it were possible to compile such a table the extravagant nature of Mr. Schussler's estimates would be shown to a very much greater degree. Very little consideration will show that in many sections of the work the size of the Alameda 54 inch pipe would necessitate heavy expenditures on that pipe line. Previously we gave Mr. Schussler's own statement as to the great depth and width of the trench for this pipe, and comparing the single case (Alameda 36 inch pipe) wherein cost data was available, showed that Mr. Schussler's estimate was more than $2\frac{1}{2}$ times the actual cost.

The last column in Table No. 7 shows the proportional unit, which can reasonably and fairly be deducted from Mr. Schussler's unit of 10.6 cents per pound complete in the ground, and which applied, will result in the following units:

Crystal Springs pipe line.....	9.23 cents per pound.
Pilarcitos pipe line	8.73 cents per pound.
San Andreas pipe line.....	8.11 cents per pound.
Alameda 36 inch pipe line....	8.10 cents per pound.

The units on Crystal Springs and Pilarcitos pipe lines would have been about the same as the other two pipe lines if trenching data had been available. There is no doubt that figures ranging between 7 and 8 cents (without the 10 per cent for contingencies always added by Mr. Schussler) could have been shown on all pipe lines had data been available in the record.

COST OF PIPE COMPLETE IN THE GROUND.

In this connection we submit testimony by various witnesses as to the cost of the pipe complete ready for service.

Mr. Grunsky's figures on the pipe lines for the Tulumne system work out at about 6.8 cents per pound complete in the ground (pp. 274, 4682). Mr. Adams stated in regard to this estimate of Mr. Grunsky's:

"The estimated cost per pound of laminated iron in place, in readiness for the delivery of water, I regard as being at least 2 cents per pound below its probable cost" (p. 4682).

Mr. Adams proceeded to place the cost of this pipe complete in the ground at 8.8 cents (p. 4682). Even assuming a cost of 8.8 cents, there is a saving, as against Mr. Schussler's estimate, of 1.8 cents a pound. And Mr. Schussler, himself, gave a figure of 8½ cents per pound in the Water Rate Investigation of 1900-01:

"XQ. 3138. Following on, in the same investigation, did you testify as follows: 'MAYOR PHELAN—Mr. Schussler, what does wrought iron cost your company a foot?' 'MR. SCHUSSLER—What is the thickness and what pres-

'sure is it to be used under? Q. I refer to the pipe in your
'inventory? A. We have 44 inch pipe that I think the last
'pipe is $\frac{1}{4}$ inch thick and it takes about 12 feet to the run-
'ning foot, a little over 12 feet, and I think that is worth in
'the ground, in the neighborhood of 8 cents per lb., taking
'the present price of iron and rivets into consideration. Q.
'Mr. Froelich said they did not estimate wrought iron pipe
'by the lb., it was by the foot? A. I estimate it for you.
'Never mind what Mr. Froelich says. These are large riv-
'eted pipe, and we have lately made a contract for iron, at,
'I think it was, 2.65 cents a lb. free on board the cars in
'Harrisburg, and I think the freight is 75 one-hundredths
'of a cent, making it about 3.41 cents here. Making allow-
'ance for the cost of manufacturing the iron and rivets, ship-
'ping, and then working the pipe, riveting, punching, calk-
'ing, dipping asphaltum, transportation, digging the trenches,
'riveting the pipe together in the ditch and calking it boiler
'fashion, covering it up again and restoring the ground as
'we find it before we dig the trench, and making proper al-
'lowances for the manholes, blow-offs, air-cocks, etc., it will
'not come very far from $8\frac{1}{2}$ cents per lb. That means
'good, first-class iron" (pp. 2272-3).

In connection with Colonel Mendell's estimate to the city of 6.7 cents per pound complete in the ground (which is very near to Mr. Grunsky's estimate of 6.8 cents), Mr. Schussler testified in Water Rate Investigation of 1889-90, as follows:

"XQ. 3185. I will ask you if you testified before the Board of Supervisors as follows: I am reading from page 489 of the original record?

"'A. I stated to Colonel Mendell that his estimates were too low. Colonel Mendell's estimates average about 6.7 cents per lb.

"'Q. That is, laying the pipe complete, is it?

"'A. That is not including any percentage added for incidental or accidental expenses. If that is added in, it would

be 7.3 cents per lb. for the iron that goes in. Now take the total weight of the pipe and multiply it by 7.3 cents for each pound, the total weight, and you have the cost of the pipe complete, with the water running through it. 7.3 cents a pound is upon the basis of 4 cents a pound for the iron and 5 cents a pound for the rivets. 4 cents a pound for the iron; and the iron and laying together would cost 7.3 cents per pound; that includes the making of the trenches, the coating and everything; air-valves, gates, blow-offs, etc.'

"A. Excuse me for interrupting you; the way that was read this morning up to this point it was supposed that I had testified that our pipe iron would cost only 7.3 cents per pound, inclusive of 10 per cent.

"XQ. 3185. Excuse me, there was nothing supposed at all. I read it exactly as it was" (pp. 2286-7).

The following taken from Mr. Hering's testimony shows the cost, complete in the ground, of steel pipe laid in New York, at 5 cents and 4 cents per pound, respectively:

"XQ. 1997. And in making your recommendations regarding the proposed New York steel pipes, did you have in mind the first-class specifications, that is, a first-class way of making the pipe?

"A. I did not pay much attention to the details of that because the figures were worked out by the assistants and were submitted to our judgment and we thought they were sufficiently correct to make the preliminary estimates of cost upon.

"XQ. 1998. However, you signed the final report and agreed with it according to your best judgment?

"A. Yes, sir.

"XQ. 1999. Are you aware of the fact that in that report you reported as follows: 'The cost of building these pipes at the shops in lengths of about 30 feet, dipping each length vertically into an asphalt coating, inspecting, testing, transporting and setting in place in the trench have been estimated at an average of 3 cents per pound. Adding the

cost of plates at 2 cents per pound will give a total of 5 cents per pound for the finished pipe in place.'

"A. I believe that is in the report.

"XQ. 2000. Do you recollect how much Mr. Schussler estimated for wrought iron pipe in place?

"A. Without laying?

"XQ. 2001. No, sir, in place?

"A. That is very different. You could never lay such kind of pipe for 5 cents a pound.

"XQ. 2002. The pipe actually manufactured and dipped, that is, in the same way this pipe was?

"A. I do not know. I did not make any calculations with reference to the pipe since two years ago.

"XQ. 2003. You further observed in your report here, did you not? 'This price has been carefully checked by a comparison with the cost of this class of work on a 7½ foot pipe for the Western Aqueduct.'

"MR. KELLOGG. Will you allow me to suggest, Mr. Partridge, for the purpose of keeping the record straight, that when you use the word 'here' somebody might think you mean San Francisco?

"MR. PARTRIDGE. By the word 'here' I mean as reported in the Report of the Commission on Additional Water Supply for the City of New York, signed by Messrs. Burr, Hering and Freeman.

"XQ. 2004. You are the same Mr. Hering who signed that report?

"A. I am.

"XQ. 2005. That price was tested and checked by a comparison with actual work on the Western Aqueduct, was it not?

"A. Yes, sir.

"XQ. 2006. I will call your attention to the following extract from the same Report, as follows, giving the actual cost of the 'Western Aqueduct 7½ foot steel pipe; weight of finished pipe per foot, 500 lbs.; cost of steel plate, per lb. 1.8 cents; cost of manufacturing, transporting, testing and setting in place, 2.2 cents; total cost per lb. of finished pipe, 4 cents.' That was the truth, was it not, as set out in that report?

"A. I presume so.

"XQ. 2007. So that your estimate of 5 cents a lb. was fully within the experience on the Western Aqueduct?

"A. Yes, sir.

"XQ. 2008. In other words, it was one cent a lb. greater than that of the Western Aqueduct, was it not?

"A. I should like to refresh my memory on that (after inspecting report). It was" (pp. 3797-9).

Mr. Schuyler stated there would be a difference of a little less than two cents a pound between the cost of steel pipe and laminated iron pipe as testified to by Mr. Schussler (p. 5529), while Mr. Grunsky considered a little over three-quarters of a cent a pound would represent the difference in cost between steel and wrought iron pipe. Even assuming an excess cost of wrought iron pipe over steel pipe of two cents a pound, we have a cost per pound, laid complete in the ground, according to Mr. Hering, of 6 to 7 cents.

The unit figures of the various engineers on the cost of wrought iron pipe, per pound, laid complete in the ground, already given and in the record, would be as follows:

Mr. Hering (computed), 6 to 7 cents.

Col. Mendell, 6.7 cents.

Mr. Grunsky, 6.8 cents.

Mr. Schussler, 8½ cents and 10.6 cents.

Mr. Adams, 8.5 cents (p. 5134), 9.4 cents (p. 5250), 10.5 cents (p. 5113), and 10.6 cents (p. 5252, accepted Mr. Schussler's figure).

Mr. Schuyler, 9.6 cents (p. 5573), 10.6 cents (p. 5528, accepted Mr. Schussler's figure).

DATES OF CONSTRUCTION OF PIPE LINES.

With the exception of the Pilarcitos pipe line, all the pipe lines are of comparatively recent construction, having been built at the following dates:

Pilarcitos pipe line	1866-1869.
Crystal Springs pipe line	1884-1885.
Alameda 36 inch pipe line	1887-1889.
San Andreas pipe line	1897-1899.
Alameda 54 inch pipe line	1902-1903.

So-called cost data was supplied by Mr. Schussler on the Alameda 54 inch pipe line, which analysis shows to be the usual reproduction estimate of the highest grade of pipe used on the system. No attempt was made to supply cost data on the other pipe lines, which it is reasonable to believe were available, especially in view of the fact that Mr. Dockweiler testified that he had seen the pay-roll of one of the earliest pipe lines built (p. 509).

Mr. Schussler, particularly, should have been in a position to supply the actual cost data, as, according to his own statement, he audited all the bills on the Alameda 36 inch pipe line, and from 1888, for several years, audited the bills for construction, (p. 2798).

ALAMEDA 54 INCH PIPE LINE.

In his estimates of February, 1904, to the Board of Supervisors, Mr. Schussler placed a value of \$345,000 on this pipe line (p. 2511), or \$15,000 less than his estimate in this suit, to which he testified on November 9, 1904, nine months later (p. 1210).

Mr. Grunsky testified to the cost as given him by the company at \$332,520:

"The new 54 inch wrought iron pipe, and connections, Burlingame to Millbrae, at cost, about \$332,520.

"XQ. 308. What do you mean by the word 'about'; that is a word that puzzles me a good deal?

"A. It is the cost that was given to me by the company, and I think I used the figures that were stated at that time. It may have been that the work was not entirely completed. I think it was given to me in those words.

"XQ. 309. How much did that total amount to?

"A. \$332,520.

"XQ. 310. Is that with 10 per cent added for engineering and incidental expense, and so on?

"A. In the case of introducing items at cost the 10 per cent has not always been added by me in addition to the cost that was given me" (p. 378).

Mr. Adams assigned as his reason for using the same unit as Mr. Schussler (10.6 cents per pound) that Mr. Schussler stated it as being the actual cost:

"If I remember correctly, 10.6 is about the price which he uses as being the actual cost, or stated as being the actual cost, of this pipe" (p. 5252).

ALAMEDA 36 INCH PIPE LINE.

The following extract from Minutes of the complainant, Book "D," under date of July 20, 1887, page 132, giving the terms of the contract entered into with the Risdon Iron Works, is submitted in confirmation of some of the figures used in previous pages:

"On motion of Mr. Goodman, seconded by Col. Fry, Resolved, that the President be authorized to contract with the Risdon Iron Works for the 36 inch wrought iron pipe for Alameda Creek as follows:

110,700 feet No. 9 iron at 2.066 per foot.....	} \$300,000.00
28,700 feet No. 7 iron at 2.482 per foot.....	
Transporting to and distributing along line 139,-	
400 feet of pipe at 15.64 per foot.....	21,000.00
Digging 120,400 feet ditch 25 913-1000 per foot.	31,200.00
Filling and ramming 120,400 feet ditch 17.441..	21,000.00
Digging 4300 joint holes at \$1.00 each.....	4,300.00
Fittings attached to pipe, about 280 manholes at	
\$15.00 each	4,200.00
56 airholes \$25.00 each	1,400.00
From 15 to 25 blowoffs at \$8.00."	

The length of the pipe line is given in the foregoing as 139,400 feet, whereas Mr. Schussler gives 143,150 feet (p. 1164). This difference might arise from the fact that the 36 inch pipe line, as originally laid, diverted the water from the Alameda Creek by means of the Niles Dam and Aqueduct at a point marked "120a" on Complainant's Exhibit No. 22 (p. 1135). Subsequently, in 1900, when the Sunol Dam and Aqueduct was completed (pp. 1770-1), the use of the

portion of this pipe from points "120a" to "116" on said exhibit was discontinued, and the new intake of the 36 inch pipe was at the Niles screen tank at point marked "115" on said exhibit, the water being diverted from the Alameda Creek through the Sunol Dam and Aqueduct (pp. 653, 655). This Sunol Aqueduct, which is composed of tunnels and flumes, terminates at point "115" on said exhibit (p. 1123), and the section from point "115" to point "116" is composed of the new 36 inch pipe laid in 1900, while from "116" westwardly toward San Francisco is the original 36 inch pipe line built 12 years previously. In connection with this newer section of the 36 inch pipe line, we submit extract from the Minutes, Book "F," under date of March 22, 1900, and call attention to the low price for the making and laying of the 36 inch pipe:

"From Shaw, Ingram, Batcher & Co.,

For 44 inch pipe\$1.65 per foot.

For 37 inch pipe\$1.37½ foot.

For 36 inch pipe 1.05½ foot.

For manholes, \$25 each.

For blowoffs, \$85 each.

For air valves, \$85 each.

"It was thereupon moved that the bid of Messrs. Shaw, Ingram, Batcher & Co., for making the pipe required as contained in their letter of March 13, 1900, be accepted. The motion was duly seconded and adopted" (p. 90).

The contract prices paid in 1900 as above contrast very strongly with Mr. Schussler's repeated statements as to increase in cost of labor.

The following is a comparison of Mr. Schussler's estimate on this pipe line with those of Messrs. Adams and Schuyler:

	Mr. Schussler.		Mr. Adams.		Mr. Schuyler.
	Unit Price.	Estimate (inclusive of 10%.)	Unit Price.	Estimate.	Estimate.
Pipe laid in Ditch.. 8,578,000 lbs.	10.6c	\$1,000,197 (p. 1165)	9.4c	\$806,332 (p. 5250)	\$806,332 (p. 5578)
Pipe laid on Trestles 1,450,000 lbs.	8.6c	137,170 (p. 1165)	7.4c	107,300 (p. 5250)	107,300 (p. 5578)
Trestles		81,400 (p. 1166-7)	}	69,063	69,063
18,960 ft.					
Gate at Burlingame		1,760 (p. 1167)			
(Rounded off) ..		\$1,220,000 (p. 1167)		\$982,695 (p. 5250)	\$982,695 (p. 5578)

It will be seen that Messrs. Adams and Schuyler agree in their figures all through. The difference between their estimates and that of Mr. Schussler amounts to \$237,305.00, whereas the difference between the computation and Mr. Schussler's estimate, appearing in Table No. 7 is \$300,267.00. The figures were arrived at on a totally different basis, but agree to the extent that Mr. Schussler's estimate was far too high.

As already given in evidence, the Minutes of complainant furnish data on the contract price for the laying of this pipe, yet Mr. Schussler testified:

"XQ. 5535. On the Alameda pipe line, Mr. Schussler, have you any record of this excavation for the trench?

"A. We have not. The ditch was dug of sufficient and ample size to handle the pipe; and the joint holes were dug and when the pipe had been put in and riveted together and repainted and coated the ditch was thoroughly filled and replaced in as near the condition as it was before as possible. There was no record kept of the size of the trench.

"XQ. 5536. Can you give us the actual cost of laying the Alameda 36 inch pipe line?

"A. No, sir, I cannot. I have estimated that as closely as I can get at it under the circumstances" (p. 2886).

Mr. Schussler is very eloquent all through his testimony on the absolute necessity for safety factors, yet the following statement by him shows that no such provision was made on this pipe line:

"XQ. 5530. Is there any safety factor for the Alameda 36 inch pipe line?

"A. No, sir, because we can repair a break in the Alameda pipe line very quickly" (pp. 2884-5).

Mr. Hering testified in that connection:

"XQ. 1818. From the intake of the 36 inch pipe line to Burlingame, there is no factor of safety, is there?

"A. There is not.

"XQ. 1819. Why is it necessary to have it above there for the distance of the aqueduct and not from that point to San Francisco or to Burlingame?

"A. In my opinion it would be very desirable to have it between Niles and Burlingame, but I do not consider that particular line is subjected to the danger that the section between Sunol Dam and the Niles Bridge is subjected to.

"XQ. 1820. Why not?

"A. In the first place no wash-outs would occur and a fire would not occur.

"XQ. 1821. Does it pass over any trestles?

"A. It passes over some trestles, I believe.

"XQ. 1822. Are not the trestles as liable to fire as are the flumes?

"A. Yes, sir" (p. 3768).

CRYSTAL SPRINGS PIPE LINE.

In the Water Rate Investigation of 1889-90, Mr. Schussler testified that the cost of the No. 7 iron complete in the ground was 9.4 cents a pound, and the No. 6 iron 8.9 cents a pound, and gave an average at about 9 cents a pound, which is even lower than the computation of 9.23 cents in Table No. 7 at page 239 of this brief:

"THE MAYOR. Q. How much is that for your Crystal Springs pipe?

"A. These are the estimates of Colonel Mendell. I will give you the actual cost of ours, also, upon the basis of 4 cents a pound for the iron, $7\frac{1}{2}$ cents a pound for the rivets, because we use refined iron for the rivets, that cost $7\frac{1}{2}$ cents; but the weight of the rivets cuts but a very small figure in the total weight of the pipe and does not make but a very slight difference in the total. In other words, the iron is at 4 cents a pound. Now, I will give you some information that generally I do not give away, but I will give it to you for the benefit of the committee. This is very valuable information. The Crystal Springs pipe, 3-16 of an inch thick, No. 7 iron, that pipe complete in the ground, transported, the ditch dug, and coated with asphaltum, and the pipe laid and riveted together in the ditch with the earth piled over it, and the manholes, air-valves, blow-offs, and everything put on, with water running through, costs exactly 9.4 cents a pound.

"THE MAYOR. Q. That work was let by contract?

"A. Yes, sir, that is what it cost for the Crystal Springs

pipe No. 7, and I do not think you can get a contractor to take it any lower expecting to make any profit upon it. This figure that I give you is the total cost, inclusive of the making. I will give you now the total in cost per foot if you want it, that the contractor gets, so you can criticise whether he got too high a price. The No. 6 iron, which is a little over one-fifth of an inch thick, cost 8.9 cents a pound complete, with the water running in. That is for the total weight of the pipe. The Crystal Springs pipe is heavier iron. The first iron I gave was No. 7. They are both together in the Crystal Springs system so they average about 9 cents a pound. The Howard street main, a 37 inch pipe, laid here on Harrison street and coming down towards Howard street, is made of one-quarter inch iron and costs, laid in the ground, 8.8 cents a pound. The less cost of that is owing to the fact that the cost of transportation was very little, as it was right here in town. That was done by contract; that is we did the ditching, laying and everything by the day; but the making of the pipe, the rolling, the punching, the riveting it together in the ditch, was done by contract. But we did the coating ourselves with asphaltum, and also dug the ditches, and did the transportation, etc.' Did you so testify?

"A. I am satisfied that is correctly quoted" (pp. 2287-8).

According to Mr. Schussler 7,968,670 pounds of pipe were laid in the ground (p. 989), so that the difference between Mr. Schussler's cost figures as above and his estimate of 10.6 cents per pound (plus 10 per cent) would be \$211,966.70, and that amount deducted from his total for the pipe, without trestles, tunnels, etc., of \$994,000 (p. 989), would leave \$782,033.30. The difference shown in the computation on Table No. 7 is \$160,732.00, arrived at by adopting a lower price for the plate iron, and this deducted from \$994,000.00, would leave \$833,268.00.

The estimates of Messrs. Adams and Schuyler, which, as shown in the following table, were \$796,444.00, fall between these two total figures:

	Mr. Schussler		Messrs. Adams and Schuyler.	
	Unit Price.	Estimate (inclusive of 10%).	Unit Price.	Estimate.
Pipe laid in ditch... 7,968,670 lbs.	\$.106	\$929,147.00 (p. 989)	\$.094	\$749,055.00 (p. 5170, 5567)
Pipe laid on trestle... 686,800 lbs.	.086	64,970.00 (p. 989)	.069	47,389.00 (p. 5170, 5567)
(Rounded off) ..		\$994,000.00 (p. 989)		\$796,444.00 (p. 5170)

Messrs. Adams and Schuyler based their estimates on Mr. Schussler's testimony as the following shows:

Mr. Adams:

"XQ. 1176. What considerations induced you to adopt the figure of 9.4 cents for the pipe that you laid in trench as distinguished from the figure of 8.5 cents that you gave for the San Andreas pipe line?

"A. The character of the evidence as given by Mr. Schussler concerning the relative qualities of the material in these different lines influenced me largely in the adoption of this figure" (p. 5168).

Mr. Schuyler:

"XQ. 526. Mr. Schussler's figure was 10.6 cents?

"A. I have a note that on page 2287 of his cross-examination he gives the cost of the three-sixteenth and No. 7 iron, complete in the ground, at 9.4 cents.

"XQ. 527. He certainly does not give that on his direct

examination. If you will examine page 989, you will see that he gives it 10.6 cents. I have no recollection that he gave it any different in the cross-examination. You accepted his figure on that, did you not?

"A. Yes, sir.

"XQ. 528. You made no estimate for this?

"A. No, sir. That was his testimony as to the cost and I have accepted his sworn statement of actual cost wherever I could recognize it as such" (pp. 5567-8).

Mr. Schussler testified as follows as to having no data on the trenches on the Crystal Springs Pipe Line:

"XQ. 5028. Can you give the character of the land through which the trenches were dug for the laying of the pipe?

"A. No, sir. I cannot, but we can estimate it very closely on account of having similar work done since" (p. 2777).

The work on the Alameda 54 inch pipe, on which he based his estimate, certainly was not similar in any sense of the word. Further in cross-examination, Mr. Schussler said:

"XQ. 5039. In order to make a rational estimate do you not have to have the character of the soil through which the trench is dug?

"A. We have data regarding the last two pipe lines, and the character of that ground is practically similar through that country. Sometimes it is a little easier and sometimes it is harder. We have had the tally of the labor on the 54 inch Alameda pipe and on the 44 inch San Andreas pipe," (pp. 2778-9).

Copy of contract for the making and laying of this pipe, entered into with the Risdon Iron Works,

on April 29, 1884, is inserted in Book "C" of the Minutes at from pages 384 to 402, from which the following is an extract:

"The quantity of pipe to be so manufactured and laid, and the price to be paid therefor, is as follows:

"First. Twenty miles, more or less, of 44 inch pipe to be made of No. 6 and No. 7 iron, in such proportions as the party of the first part shall direct, and for so much thereof as is made of No. 7 iron, the party of the second part is to be paid at and after the rate of \$3.09 per lineal foot; for so much thereof as is made of No. 6 iron, the party of the second part is to be paid at and after the rate of \$3.32 per lineal foot" (p. 387).

PILARCITOS PIPE LINE.

This pipe line consists of 65,170 feet of 30 inch wrought iron pipe; 2,400 feet of 22 inch wrought iron and 776 feet of 24 inch cast iron pipe (p. 784).

On the 22 inch and 30 inch wrought iron pipe, Mr. Schuyler accepted Mr. Schussler's unit of 10.6 cents per pound (p. 5528), whilst Mr. Adams gave a figure of 10½ cents a pound, in the fixing of which he stated he was partly "influenced by the evidence of Mr. Schussler, the chief engineer, concerning the actual cost to the company of a number of its pipes as laid complete and in use" (p. 5113).

As to the present cost of laying this pipe line, Mr. Schuyler testified:

"XQ. 314. You made your estimate according to what you believed was the actual original cost, did you not?"

"A. Yes, sir.

"XQ. 315. And Mr. Schussler makes his estimate according to the cost of duplication in 1903 and 1904?"

"A. Yes, sir.

"XQ. 316. Do you consider that the cost of laying the Pilarcitos pipe line at the time it actually was laid was the same as if it was laid in 1903 and 1904?"

"A. That Pilarcitos pipe line at the time it was laid may have cost more to lay it than it would to lay it in 1903 or 1904" (p. 5529).

SAN ANDREAS PIPE LINE.

MR. SCHUSSLER:

Estimate in this suit (inclusive of 10 per cent).....\$628,000.00
(p. 871)

Estimate before Supervisors in February, 1904.....\$600,000.00
(p. 2505)

Estimate in 1901:

11 miles of 30-inch pipe.....\$230,000.00

New 44-inch pipe..... 320,000.00—\$550,000.00
(pp. 2477)

MR. AMES (Secretary of Complainant):

Estimate in 1901:

Old pipe\$199,605.36

New pipe 299,562.88—\$499,168.24
(pp. 2477)

MR. ADAMS\$487,926.00
(p. 5136)

MR. SCHUYLER\$489,401.00
(p. 5548)

MR. GRUNSKY (pp. 164, 184-5, itemized in Municipal

Reports 1901-2, page 804).....\$490,443.00

It will be noted from the above that all the estimates, excepting Mr. Schussler's, are remarkably close to each other. The figure given by the Secretary of \$299,562.88 for the new pipe is in respect to the 44 inch and 37 inch pipe (p. 2184), of which there are altogether 30,230 feet, weighing 3,919,795 pounds (p. 869). This represents a figure of 7.9 cents per pound complete in the ground, which is near to the 8.5 cents per pound given by Messrs. Adams and Schuyler on this same pipe (pp. 5124, 5537). On the 30 inch pipe, Messrs. Adams and Schuyler gave units of 10.5 cents and 10.6 cents respectively (pp. 5134, 5538), and Mr. Adams attributed this difference in his units to the testimony of Mr. Schussler as to the superior grade of the 30 inch pipe (p. 5134). The difference between the Secretary's estimate on the 44 inch and 37 inch pipe of \$299,562.88 (which was probably the cost) and Mr. Schussler's estimate of \$457,048.00 (inclusive of the usual 10 per cent) would be \$157,485.12, or an increase of over 50 per cent. This is hardly justifiable, as in connection with the difference between his estimate in 1901 and his later estimates, Mr. Schussler testified:

"The difference of that estimate of that pipe line and the estimate of later years is not so marked because a large portion of that estimate is for the metal used in the pipe and also for the mechanical work, the mechanical labor not having increased at so great a ratio since that time as the common labor as is used in dam building; that has increased fully 50 per cent since the 1901 report was made.

"XQ. 4022. In what percentage has the skilled labor required for laying pipe, that is, joining, etc., increased?

"A. That I could not tell you. We could only make an approximation of that" (p. 2506).

And:

"XQ. 3895. You think there has not been much increase in the cost of laying pipe?

"A. I do not know, but that was as near as I could get at it at that time" (p. 2478).

Mr. Dockweiler gave a figure of \$104,000.00 in respect to the part of the San Andreas pipe line which had gone out of use (p. 645), and in this connection Mr. Schussler stated that the difference of cost between the old 30 inch pipe which was replaced and the new 44 inch pipe would be about \$150,000.00 (p. 2628). These amounts total up to \$254,000, which, allowing for the portion of the pipe gone out of use, corresponds closely with the Secretary's figure for the new pipe in 1901.

The differences between the estimates of Messrs. Schussler, Adams and Schuyler upon the different pipe lines are summarized on Table No. 8.

TABLE No. 8.

Comparison of Estimates of Messrs. Schussler, Adams and Schuyler on Pipe Lines.

	Mr. Schussler.	Page	Mr. Adams.	Page	Mr. Schuyler.	Page	Average of Messrs. Adams and Schuyler.	Difference between Mr. Schussler and average of Messrs. Adams and Schuyler
Alameda 36-inch pipe line.....	\$1,220,000.00	1167	\$982,695.00	5250	\$982,695.00	5578	\$982,695.00	\$237,305.00
Crystal Springs pipe line.....	994,000.00	989	796,444.00	5170	796,444.00	5567	796,444.00	197,556.00
Pilarcitos pipe line.....	329,255.00	785-6	296,499.00	5036	299,323.00	5520	297,911.00	31,344.00
San Andreas pipe line.....	628,000.00	871	487,926.00	5136	489,401.00	5548	488,664.00	139,336.00
	\$3,171,255.00		\$2,563,564.00		\$2,567,863.00		\$2,565,714.00	\$605,541.00

CONCLUSIONS AS TO WROUGHT IRON PIPE.

Defendants submit that the foregoing discussion proves that the Alameda 54 inch pipe line, which was used by Mr. Schussler as the basis of his estimates on all wrought iron pipe, was of a superior and more expensive construction than that of other pipe lines. The following are the important points in which the Alameda 54 inch pipe has been shown to exceed in expenditure the other pipe lines (the reference to page numbers being for pages of this brief) :

Plate iron superior in grade (pp. 204-6).

Manufactured at a cost very much higher, and beveled on the inside (pp. 225-7).

Cost of dipping more in proportion owing to its greater surface area (pp. 231-4).

Heavier railroad and haulage charges owing to its greater size (p. 235).

Necessity for deeper trenches for same reason as last (p. 235).

In addition to the above items of expenditure, which were much greater than on any other pipe line, various improvements were introduced in the construction of the Alameda 54 inch pipe, such as concrete saddles, automatic vacuum valves with bronze shut-off gates, etc., which were not used on any of the other pipes with the exception of the San Andreas 44 inch pipe.

Attention is also called to the fact that, whereas in the cases of the San Andreas 44 inch pipe and the Alameda 36 inch pipe, deduction has been made in Table

No. 7 of 2.49 cents and 2.50 cents per pound respectively from Mr. Schussler's figures, it has only been possible on the Pilarcitos and Crystal Springs pipe lines to deduct 1.87 cents and 1.37 cents per pound respectively (Table No. 7) owing to less data being available on these two latter pipe lines. It is fair to assume, however, that had complete data been obtainable a reduction would have been made on these latter pipe lines similar to the former, and that therefore a proper unit for the cost of all wrought iron pipe laid in trenches, complete, is 8.10 cents per pound in place of 10.6 cents as given by Mr. Schussler. On the proportion of the pipe laid on trestles, a corresponding reduction should be made, bearing in mind Mr. Schussler's declaration that the saving in cost of laying on trestles over laying in ditch would be 2 cents a pound (p. 987).

SUBMARINE PIPE LINE.

16-INCH SUBMARINE PIPE—

The following extract from the Minutes of the complainant, Book "D," under date of July 20, 1887, shows that the contract entered into with the Risdon Iron Works for the furnishing, making, transporting and laying of this pipe line, amounted to \$125,400.00:

"Furnishing, making, transporting and laying across 300 feet slough and across San Francisco Bay at Dumbarton Point a double line of 6,600 feet or a total length of 13,200 feet, more or less, of 16 inch best lap-welded tubing, zinc galvanized in first-class style in and outside of 5/16 best wrought iron in from 18 to 20 feet length, with perfect ball

and lead joints, according to specifications, complete, in place and ready for service for \$9.50 per each lineal foot of single line of pipe, \$125,400" (pp. 132-3).

Mr. Schussler gives the length of this pipe as 13,563 feet (p. 1178), whereas the above figure is on a basis of 13,200 feet. The difference for the odd 363 feet would amount to \$3,448.50, or a total of \$128,848.50. Mr. Schussler's estimate, inclusive of 10 per cent, was \$176,000.00 (pp. 1178-9), but included in this amount were certain shore connections on which no separate price is given in the record. These shore connections, as detailed by Mr. Schussler (p. 1178), consisted of gates, safety valves, air chambers, platforms, tees, etc., and we submit that even making full allowance for these connections there is no justification for the excess of \$47,151.50, represented by the difference between Mr. Schussler's estimate and the contract price without the shore connections.

22-INCH SUBMARINE PIPE—

The tubes for this pipe were purchased in Pittsburg and were supplied by the complainant after being galvanized and asphalted (pp. 2977, 2988).

Mr. Schussler's estimate for the making and laying of this pipe was \$182,380.00 (inclusive of 10 per cent for contingencies, p. 1179), whereas the contract with the Risdon Iron Works (pp. 2974-95) covers this same work at a consideration of \$10.90 per lineal foot (p. 2975), totaling up to \$148,240.00 for the 13,600 feet, which is \$34,140.00 less than Mr. Schussler's figure.

CITY PIPE SYSTEM.

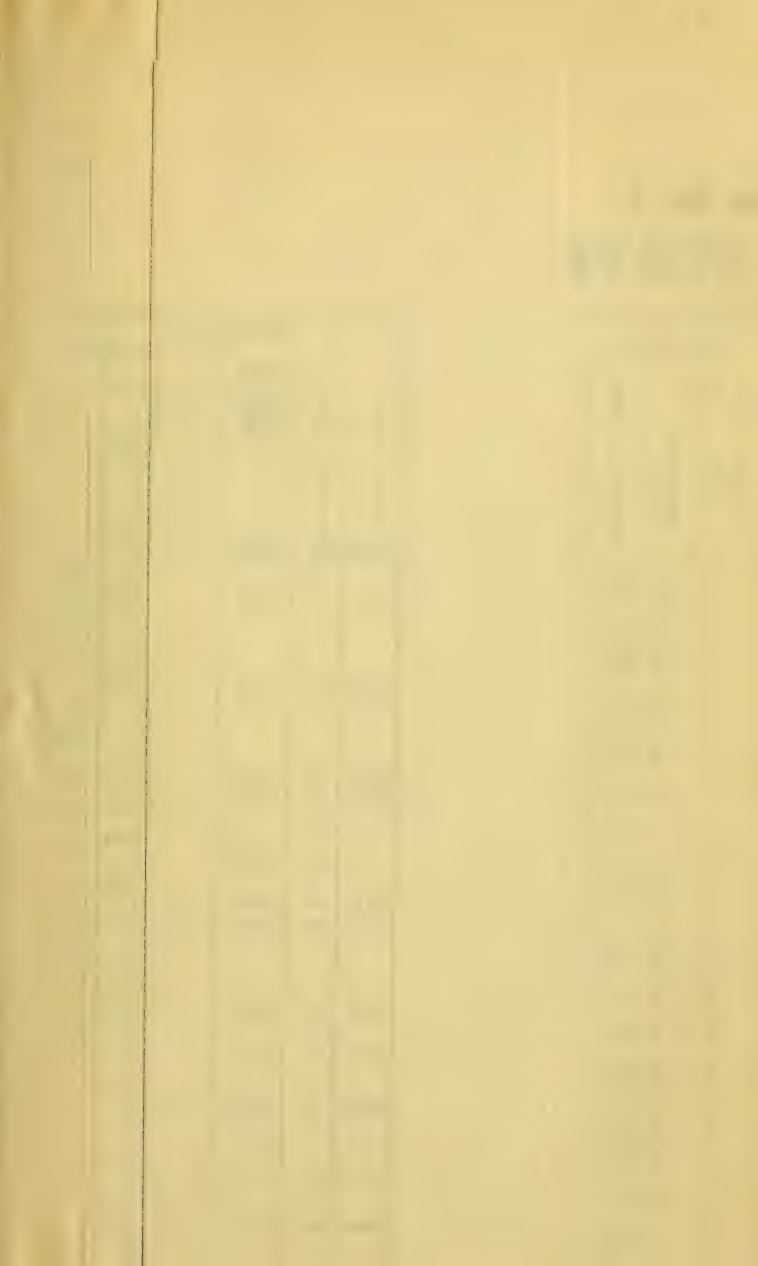
Table No. 9 gives the detail estimates of the several witnesses on the Cast and Wrought Iron Pipe of the City Distributing System, of which the total estimates are as follows:

	Mr. Schussler (Inclusive of 10%)	Report of 1-30-03.	Mr. Grunsky Report of 1-26-04.
Cast Iron Pipe.....	\$5,108,300 (p. 1496)	\$3,615,869 (p. 168)	\$3,763,239 (p. 189)
Wrought Iron Pipe.	591,900 (p. 1498)	477,030 (p. 168)	443,012 (p. 189)
Gates		94,820 (p. 169)	75,325 (p. 190)
Special Structure..	80,500 (p. 1501)	120,710 (pp. 168-9)	120,710 (p. 190)
	<hr/> \$5,780,700 (p. 1501)		
5% for interest during construction..	289,035 (p. 1501)		
	<hr/> \$6,069,735 (p. 1501)		
	<hr/> (Rounded off) \$6,069,000 (p. 1501)	<hr/> \$4,308,430	<hr/> \$4,402,286
Mr. Adams			\$4,481,716 (p. 4738)
Mr. Schuyler (includes stock on hand).	\$5,168,055 (p. 5449)		
Less stock on hand, put by Mr. Schussler at \$270,000 (p. 1516)....	270,000		
	<hr/>		\$4,898,055
Mr. Dockweiler			\$4,401,504 (p. 647)
Mr. Fitzgerald (includes meters).....	\$4,804,431.72 (p. 433)		
Less meters, put at \$150,000 by Mr. Schussler (p. 1516).....	150,000.00		
	<hr/>		\$4,654,431.72

Testifying in the Water Rate Investigation of 1900-01, Mr. Schussler said:

"We claim the city pipe and the reservoirs are only worth four and a half million; and the Lake Merced property worth about two and a half million; that makes seven million; that is about the real value of our property in this city" (p. 2645).

In this suit, Mr. Schussler gave \$947,000 for the construction of the city reservoirs (p. 1438), and \$657,000



CITY PIPE SYSTEM

Mr. Schuyler	\$5,168,055.00	(p. 5449).
Mr. Dockweller	4,401,504.00	(p. 647).
Mr. Fitzgerald	4,804,431.72	(p. 637).
Mr. Hering	7,700,000.00	(p. 3721), includes the city reservoirs.

for the city reservoir tracts (p. 2521), or a total, with the figure above for the city pipe system, of \$7,673,000, about seventy per cent increase over the figure of \$4,500,000 given by him in 1900, as quoted.

Mr. Wenzelburger gave in his Exhibit No. 100, page 21, a memorandum he found in the books of complainant on the cost of the works as of December 31, 1900, in which this item appears—"City System, \$3,575,086.08." While this would be subject to increase for work done since, it must be remembered that it probably includes the city distributing reservoirs.

It will be noted in comparing the foregoing estimates that Messrs. Adams, Grunsky and Dockweiler are in close agreement, with Messrs. Schuyler and Fitzgerald slightly higher. It will also be seen that all the estimates differ to a remarkable degree from that of Mr. Schussler. This startling difference can be accounted for only on the basis that Mr. Schussler's estimates for laying pipe are exaggerated, unreasonable and unwarranted. Messrs. Adams and Schuyler, as usual, accepted Mr. Schussler's quantities, and based their estimates on the same classes of pavements. As shown in Table No. 9 on the City Pipe System, Mr. Grunsky used his own quantities, and did not give units or classification under pavements, but simply assigned totals for each class of pipe.

CAST IRON PIPE.

Mr. Schussler's units, which were given at a rate per foot complete in the ground, vary according to the pavements under which the pipe was laid and the district in which the pavement was situate (pp. 1493-7). Mr. Schussler divided the city into three districts (Districts A, B and C), as illustrated on Complainant's Exhibit No. 81, according to the difficulties encountered under the pavements in the laying of pipe (pp. 1452-4). These districts were fixed arbitrarily by Mr. Schussler, and the classes of pavement have certainly changed since the laying of some of the earlier pipe and the preparation of this exhibit. Mr. Schussler's units range very much higher in District A than in Districts B and C, also under bitumen pavement than under basalt (pp. 1493-7), and this leads to the conclusion that the element of difference of cost in laying pipe under the various pavements, and the replacing of these pavements, was given first importance by Mr. Schussler in the preparation of his estimate. This is also proved by the fact that Mr. Adams, whose estimate was \$1,587,-284 lower than Mr. Schussler's, gave \$45.00 a ton as his price for the cast-iron pipe itself (p. 5273), while Mr. Schussler gave a figure of \$40.00 a ton in the following testimony:

"XQ. 5742. What was that pipe?

"A. We made one contract of \$36.40 per ton.

"XQ. 5743. In that year?

"A. In 1904; and we made another contract of \$44.40 in 1903.

"XQ. 5744. In making your estimate of the city distributing system, how much did you estimate pipe at per ton delivered?

"A. I averaged it at \$40 a ton. It was pipe of the one year and of the other year that was laid during these years."

"XQ. 5745. In getting at the city system you gave a mere average?

"A. These two big year contracts, yes; that is the only fair way we can get at it. That is the average price. The average really amounts to \$40.40, but I have rounded it off to \$40 a ton. That is first-class pipe purchased under our extremely rigid specifications which are here, and I will be glad to give you a copy of them" (pp. 2932-3).

COST OF CAST IRON PIPE.

That \$40.00 a ton is not a fair average of the cost of this pipe is amply proved by the following cost figures extracted from the books of complainant. Mr. Schussler, in the Water Rate Investigation of 1901-2, testified that during the time they put in the greatest quantity of pipe, and of the heaviest grade, iron was very low and they were able to purchase at \$26.00 and \$28.00 a ton (p. 2635). This is confirmed by the books which show that very considerable quantities were purchased around \$28.00. Cost figures since 1894 as set out in Mr. Wenzelburger's detail statements from the books are given below, from which it will be noted that with the exception of purchases in July and August, 1900, the price did not exceed \$40.00 till the last year (1903), and therefore an average at that figure is absurd:

Date.	Cost per ton.	Page No. (Exhibit 101.)
May, 1894, to March, 1895...	\$28.05	109-119
April and May, 1895.....	29.25	119-21
July and Aug., 1895.....	31.50	121-3
Aug., 1895, to March, 1896..	32.00 and 32.50	123-137
April and May, 1896.....	32.00	138-9
June, 1896	31.00	140
July and Aug., 1896.....	31.50	142-4
Dec., 1896, and Jan., 1897...	30.25	148-152
July, 1897, to June, 1898....	27.25 and 27.75	157-171
June to Oct., 1898.....	27.50	171-6
March and April, 1899.....	28.25	184
April to July, 1899.....	31.50	184-191
July, 1900	44.00	200
August, 1900	45.50	200
December, 1900	37.50	203
(Exhibit 99.)		
Jan. to April, 1901	37.50	34-41
May, 1901	34.50	43
August, 1901	35.50	49
Oct. to Dec., 1901.....	36.50	53-55½
May to July, 1902.....	38.00	56-60
July and August, 1902.....	40.00	60-2
August and Sept., 1902.....	38.50	62-5
September, 1902	38.00	65-75
January, 1903	38.10	45
March and April, 1903.....	38.00	51-3
April, 1903	38.00, 42.00, 44.40	53-4
May, 1903	44.40	55
June, 1903	44.40	60
June, 1903	45.40	60
July, 1903	43.00, 44.40, 45.90	62-4
August, 1903	43.00, 44.40, 45.90	67
Sept. and Oct., 1903.....	43.00, 44.40	70
November, 1903.....	38.50, 43.00, 44.40	73
December, 1903.....	38.50, 43.00, 44.40	76

The following extracts from the Minutes of complainant are given, showing purchases under Mr. Schussler's average of \$40.00.

Book "E," May 4, 1893, page 12, at \$31.75 per ton:

"On motion of Mr. Beaver, Resolved, That the proposition of Husband & Brooks, on behalf of the Ranford Pipe

and Foundry Co., at Armiston, Alabama, as follows, be accepted:

"We agree to furnish 6,600 feet 20-inch cast iron water pipe with your specifications and drawings, said pipe to be delivered at San Francisco, for \$31.75 per ton of 2,000 lbs."

Book "E," March 23, 1899, page 515, at \$31.50 per ton:

"The chairman laid before the Board an order given for 2,000 pieces of 8-inch, 500 pieces of 12-inch and 500 pieces of 16-inch cast iron pipe, at a uniform price of \$31.50 per ton on cars in this city, which was, on motion duly made and seconded, approved and ratified."

Book "B," November 25, 1904, page 124, at \$36.40 per ton:

"The President submitted to the Board a letter from the Martin Pipe & Foundry Company offering to furnish 24-inch cast iron pipe at the price of the order now in force (viz., \$36.40 per ton of 2,000 pounds), subject to the specifications, terms and conditions as on previous orders.

"The President was, on motion duly made, seconded and carried, authorized to order the above pipe in accordance with the above bid from the Martin Pipe & Foundry Company."

Book "B," July 6, 1905, page 183, at \$40.50 and \$39.00 per ton:

"Bids for furnishing 8-inch and 4-inch cast iron water pipe were opened, and bid of the Martin Pipe & Foundry Company to furnish the required amount (1,000 pieces) of 4-inch pipe at \$40.50 per ton of 2,000 pounds, and of 8-inch pipe at \$39 per ton, was on motion duly made, seconded and carried."

Book "B," September 14, 1905, page 202, at \$39.75 per ton:

"Bids were received for 1,000 pieces of eight-inch cast iron water pipe, and the bid for the same from the Martin Pipe & Foundry Company was duly accepted at the price of \$39.75 per ton of 2,000 pounds, free on board cars at San Francisco."

The following statement by Secretary of complainant shows that the average price of cast-iron pipe purchased about 1898 was \$28.00 a ton:

"XQ. 4484. In the water rate investigation of 1899-1900, in your presence, you being also sworn as a witness at the time, the very time that he testified, do you recollect Mr. Ames testifying as follows:

"Q. Have you any objection to state what was paid for the pipe?

"A. My impression from memory is it was about \$28 per ton.

"Q. The same price prevails, no matter what the pipe is?

"A. No, sir; the pipe varies somewhat. That is, a smaller pipe is higher priced, but we have been buying only the larger pipe.

"Q. It runs at an average of about \$28 a ton?

"A. It runs at an average of about \$28 per ton and about 15 miles have been laid in this city during the year 1898.

"MR. KELLOGG—Before you answer that question, I want to ask Mr. Partridge if the context shows what kind of pipe was referred to in the interrogatory?

"MR. PARTRIDGE—Cast iron pipe in the city system.

"A. I do not remember that incident, but it is very likely that Mr. Ames made that statement. The price of pipe has gone up considerably since" (p. 2628).

Further as to the price of cast-iron pipe in recent years, it is pointed out that Mr. Adams, cross-examined as to price of pipe on which he based his figures in

the Los Angeles Report in 1898, testified that he fixed same at the ruling price at the date of the appraisal, which was \$24.50 per ton (p. 5271).

COMPARISON OF ESTIMATES OF MESSRS. SCHUSSLER AND ADAMS ON CAST IRON PIPE.

The weight of the different sizes of cast-iron pipe is not given in the record, and therefore computations cannot be made along that line to determine by what amount Mr. Schussler's total estimate would be increased if based on the same unit per ton as Mr. Adams' (\$45.00). Bearing in mind that Messrs. Schussler and Adams base their estimates on the same premises as to class of pavement, quantities, etc., and that Mr. Adams' basic figure for the pipe itself was \$5.00 a ton more than Mr. Schussler's, the following figures on the cast-iron pipe illustrate how enormously Mr. Schussler's figures for the cost of laying of the pipe and replacing of the pavements must have exceeded those of Mr. Adams:

Cast Iron Pipe.	Mr. Schussler's Estimate (In- clusive of 10%).	Mr. Adams' Estimate.	Difference.
3-inch ..\$	96,900 (p. 1493)	\$ 90,587 (p. 5283)	\$ 6,313
4 " ..	366,900 (p. 1493)	309,059 (p. 5283)	57,841
6 " ..	973,400 (p. 1494)	801,348 (p. 5283)	172,052
8 " ..	1,398,400 (p. 1494)	716,657 (p. 5283)	681,743
10 " ..	26,100 (p. 1494)	19,754 (p. 5283)	6,346
12 " ..	943,400 (p. 1494)	700,250 (p. 5283)	243,150
16 " ..	586,000 (p. 1495)	505,184 (p. 5283)	80,816
20 " ..	147,400 (p. 1495)	123,610 (p. 5283)	23,790
22 " ..	176,100 (p. 1495)	136,346 (p. 5284)	39,754
24 " ..	340,300 (p. 1495)	276,205 (p. 5284)	64,095
30 " ..	53,400 (p. 1495)	44,451 (p. 5284)	8,949
	<hr/> \$5,108,300 (p. 1496)	<hr/> \$3,723,451	<hr/> \$1,384,849

This total amount for the cast-iron pipe of \$3,723,451 by Mr. Adams is very close to the total of \$3,763,239 given by Mr. Grunsky in his Report to the Board of Public Works of January 26, 1904 (p. 189), which, however, was arrived at on a different basis as Mr. Grunsky used his own quantities as shown in Table No. 9 on City Pipe System. Mr. Schussler stated that Mr. Grunsky had a great many holes dug down to the pipes to verify the statements of the company (p. 2965-6). Comparison of their estimates shows that Mr. Schussler's estimate of value far exceeded that of Mr. Grunsky on every size of pipe.

BASIS OF MR. SCHUSSLER'S ESTIMATE ON CAST IRON PIPE.

Mr. Schussler based his estimates on new pipe of the first class quality of that laid in 1903 and 1904, purchased in accordance with his specifications on record as Complainant's Exhibit No. 93 (p. 2933), which, as the following testimony shows, had been in force only since about 1890 or 1891 (pp. 2933-4):

"XQ. 5746. That specification is made for what year?

"A. That has been made for quite a number of years. I do not know when I got it up.

"XQ. 5747. Was all the pipe in the city distributing system made according to these specifications?

"A. No, not all. It was made, I think, about the year 1890 or 1891.

"XQ. 5748. Have you always used the same quality of pipe in the streets?

"A. We have always tried to get the best.

"XQ. 5749. I did not ask you that. I asked you if you have always used the same quality of pipe?

"A. No, sir, we could not because the quality varies from different places.

"XQ. 5750. You made your estimate as if it were all of one kind, did you not?

"A. I made my estimate on the cost of pipe ruling in the year 1903 and 1904.

"XQ. 5751. Your estimate is made on the basis of the kind of pipe you laid in 1903 and 1904, is it?

"A. Yes, sir.

"XQ. 5752. However that may be, the fact is you estimated the value of the city distributing system at all of the same quality of pipe, which is the pipe named in the specifications in force in 1903 and 1904. Is not that so?

"A. Yes, sir" (pp. 2933-4).

The record shows that a large portion of the pipe has been laid over 40 years, Mr. Schussler testifying in regard to the consolidation of the San Francisco City Water Works and the Spring Valley Water Works as follows (pp. 1707-8):

"As I stated before, the two pipe accounts of the two companies that had come together the year before were balanced up in the year 1866; a statement was made up as of June 1st, 1866, and that shows that at that time there was a total length of pipe in the two systems put together of something over 338,000 feet."

Details of the total lengths of cast-iron pipe laid in the streets at the dates below are given as follows:

		Feet.		Miles.	
January 1, 1870...	583,000	or about	110	(p. 1710)	
January 1, 1875...	769,000	"	145½	(p. 1712)	
January 1, 1880...	910,000	"	172½	(p. 1713)	
January 1, 1885...	1,034,000	"	196	(p. 1714)	
January 1, 1890...	1,304,000	"	247	(p. 1716)	
January 1, 1895...	1,606,000	"	304	(p. 1717)	
January 1, 1900...	1,995,000	"	378	(p. 1719)	
July 1, 1904...	2,179,260	"	412.74	(pp. 1492, 1721)	

PIPE TAKEN UP ON COUNTRY MAINS GENERALLY RE-USED
IN CITY PIPE SYSTEM.

In connection with the quality of the pipe, it is to be remembered that Mr. Schussler stated that all pipe taken up on the main pipe lines outside of San Francisco was cleaned and relaid in the city. A few extracts from Mr. Schussler's testimony are submitted:

"XQ. 553. From that point there was another pipe line across what is known as the Ocean View Valley?

"A. Yes.

"XQ. 554. It ran to a small tunnel, did it?

"A. Yes.

"XQ. 555. What was the size of that pipe line?

"A. I believe that was also 16-inch.

"XQ. 556. Cast-iron?

"A. Yes.

"XQ. 557. Was that taken up?

"A. That was all taken up.

"XQ. 558. Where was it put?

"A. Probably used in town. All the outside pipes were transported into San Francisco and cleaned up and relaid" (pp. 1691-2).

And:

"XQ. 562. And there was another pipe line crossing what is known as the race track or Ingleside Valley?

"A. That is right.

"XQ. 563. And it arose again on the northerly side of the Ingleside Valley, on the Sutro property?

"A. On what is now known as the Sutro property.

"XQ. 564. That pipe line was of what size and character?

"A. I believe that was all 16-inch.

"XQ. 565. Cast-iron?

"A. Yes.

"XQ. 566. Was it taken up?

"A. Yes.

"XQ. 567. Used in the city?

"A. Very likely.

"XQ. 568. You do not know for sure about that?

"A. No, but that was the natural drift; having the pipe there and not needing it any more on the line I know that a great deal of that pipe was brought into town, and I have no doubt but that all of it was brought into town and used" (p. 1692).

And again :

"XQ. 544. Then from that point opposite Colma Station you say there was a pipe line across the valley past Colma station up on the side hill of the westerly slope of the San Bruno mountains. Can you estimate about the length of that pipe line?

"A. No, but I think the length could be got at approximately.

"XQ. 545. Do you know what kind of pipe it was?

"A. I believe it was cast-iron, 16-inch.

"XQ. 546. 16-inch cast-iron pipe?

"A. Yes.

"XQ. 547. That is not in use any more?

"A. That was taken up and brought into town and cleaned and laid out in the city.

"XQ. 548. And is a part of the city distributing system?

"A. Yes. I think a good deal of that pipe went out on Fillmore street, if I remember right" (p. 1691).

And further :

"XQ. 529. The old Pilarcitos conduit practically went out of use at the time the new 30-inch pipe line was laid, did it not?

"A. Yes, but the portions of the line which were in good condition, for instance, the cast-iron pipes across the Crystal Springs Valley—that was good cast-iron pipe and that was sent to San Francisco, where it was cleaned up and

laid, as also was the 16-inch cast-iron pipe, which was very long, crossing the depression near Colma—from the Colma westerly hills over toward the San Bruno mountains; and furthermore, also the two 16-inch pipes that crossed the Ocean View Valley and the Ingleside Valley, as they call it now, and which I described yesterday” (p. 1688).

It is obvious from the foregoing that a considerable proportion of the city pipe was old pipe taken up from country mains and relaid. Yet Mr. Schussler charges all alike as brand new pipe.

PAVEMENTS.

Mr. Schussler's figures on the cost of digging the trenches, laying the pipe and replacing the pavements are based on certain work done in 1904, on which they kept tally for the purpose of this suit (p. 2930). On the digging of the trenches, Mr. Schussler testified:

“XQ. 5797. Can you not give from your notes the depths to which you go in various portions of the city?”

“A. No, we have no record of that.

“XQ. 5798. Then you did not use any depth of trench in making your estimate at all?”

“A. No, sir, that was not necessary because we had the record of the cost of all the labor connected with it.

“XQ. 5799. Is that labor segregated or did you have it segregated for certain particular pieces of work?”

“A. Yes, sir, it is all for separate pieces of work.

“XQ. 5800. I asked Mr. Williams the other day before the supervisors, to segregate the labor on the city distributing system, and he seemed unable to do so.

“A. He could not on the whole. We have only sample works where we kept the exact tally—quite a large proportion of the work of 1904, so that it gives us a very good chance to estimate the value of that work” (pp. 2940-1).

The following from Mr. Schussler would not seem to be very convincing as to the reliability of the data on which he prepared his Exhibit No. 81, dividing the city into districts, and on which he based his estimates as to the various sizes of pipe under the different kinds of pavement:

"XQ. 5927. Mr. Schussler, do you know how many miles of each size of pipe are actually placed under each kind of pavement?

"A. No, but we have a very close record of it. We have taken from the City Hall—we have asked them to give us the exact number of blocks of the various pavements in this city. From that we have constructed a map showing the bituminous pavement and the stone block pavement, and that has given us a chance to find out very closely how much pipe of each size is located underneath the various kinds of pavements. We had to do that in order to come to as accurate an estimate as we have made" (pp. 2969-70).

Mr. Schussler stated that his estimates were made according to the kind of pavement and condition of pipe as at July 1, 1904 (p. 1491), and further gave the following testimony:

"XQ. 5753. Your estimate of the value of the distributing system is made according to the conditions of the streets in San Francisco in 1903 and 1904?

"A. Yes, sir.

"XQ. 5754. That means that your estimate must be a great deal higher than what it actually cost to lay the pipe; is not that so?

"A. There is no doubt about that because since a pipe has been laid—if a pipe has been laid on a macadamized street, and the next year a bituminous pavement with concrete is put over it that makes the pipe under the ground and under the pavement that much more valuable as what

the bituminous pavement cost, because if we had not laid the pipe prior to the bituminous and concrete pavement we would have had to cut the bituminous pavement and lay the pipe and then replace the pavement.

"XQ. 5755. Why should the city or why do you claim the city should be compelled to pay an income on pipe that was laid under conditions of less difficulty and therefore cost less as a basis upon the difficulties and therefore the increased cost of the present time, or, in other words, 1903-04?

"MR. KELLOGG—I object to the question on the ground that it is wholly a legal question.

"A. I was just going to say I am not a lawyer to determine that. I was simply requested to make a valuation of what it was worth now and what it would cost to do it under the present circumstances, taking into consideration the difficulties you encounter.

"MR. PARTRIDGE—XQ. 5756. At the present time?

"A. During the year 1903-04.

"XQ. 5757. Let us get that clearly now. Your estimate of the entire city distributing system is based upon the difficulties of laying that pipe new in 1903 and 1904, and of removing asphalt, basalt, cobbles or whatever pavement there may happen to be, in spite of the fact that that pipe—a large portion of it—was laid when the difficulties were very much less, and some of it laid before the asphalt, basalt or cobble pavement was actually laid. Is that true?

"A. Certainly; we are doing that very thing now; when we lay a pipe along in the street now we have to cut the pavement, we lay the pipe, put in all the fittings and connections and then have to replace the pavement, and we usually replace it in better condition than the way we found it. If we have been fortunate enough to lay a pipe a year before the pavement is put on, and the following year the pavement is put over the street, that increases the value of our pipe under ground to the extent of this additional cost.

"XQ. 5758. And you think you should be allowed an income on that increase of value which comes from the fact that you were lucky enough to lay the pipe when conditions were more favorable?

"MR. KELLOGG—The same objection.

"A. That is a legal conclusion.

"MR. PARTRIDGE—XQ. 5759. What do you think about it?

"A. I do not propose to express any opinion on it. I was simply asked to make a valuation of the work as it stands now. I have done that and that is where my authority ends.

"XQ. 5760. You have no opinion on that subject?

"A. My opinion is that I am right. My opinion is that this is the proper way to value this kind of property, and what it would cost to reproduce it now under the present circumstances.

"XQ. 5781. Under the present conditions of the streets?

"A. Yes, sir, it includes that in my opinion. If, for instance, the city to-day would go to work and lay a pipe system clearly equal to ours now, what it would cost to do that work in as thorough a manner as we have done it, and replace the pavement, that is the value to-day of our pipe system according to my opinion.

"XQ. 5782. And upon that you think you should be allowed an income from the rate-payers?

"A. That is a legal question.

"XQ. 5783. What do you think about it?

"A. I prefer not to express any opinion on that. That is the question for the judge to decide" (pp. 2934-7).

Mr. Schussler's theory being that the increase in cost of laying of pipe, owing to change in pavement since pipe was put in, should result to the profit of the company, it is well to remember that, as previously shown, about half the pipe at present laid in the city pipe system was in the ground 20 years ago, and a portion thereof much longer, extending in the case of the oldest pipe to over 40 years. The pavements of San Francisco must unquestionably have materially changed during this period of time, and therefore the cost on Mr. Schussler's basis must be enormously greater than the original cost. In proof thereof, attention is called to

figures given by Mr. Adams in Table No. 9 on the City Pipe System, under the column of "Pavements," wherein the items for bituminous pavements range from 4 to 6 times higher than those applying on basalt pavements. It is to be noted that Mr. Adams' estimates are based upon the same theory as Mr. Schussler's. The difference between the two cannot be accounted for by the difference between original cost and reduplication under present difficulties.

Mr. Adams testified:

"XQ. 1679. And you accepted Mr. Schussler's testimony as to the obstacles encountered and other things, which made it difficult and expensive to lay this pipe?

"A. Yes" (p. 5270).

PREVIOUS ESTIMATES BY MR. SCHUSSLER.

The following quotations from Mr. Schussler's testimony, showing statements made by him in Water Rate Investigations as to cost of pipe laid complete, are here submitted:

16-inch pipe under basalt in District B:

"XQ. 5810. In which district is Fifth and Bryant?

"A. District B.

"XQ. 5811. The second district?

"A. Yes, sir.

"XQ. 5812. Referring to your testimony you testified, did you not, that the cost of laying 16-inch cast iron pipe under basalt in district B is \$4.50 a foot; is that correct?

"A. Yes, sir; that is on page 1495 of my testimony. That is the average cost to the city.

"XQ. 5813. I will ask you if you testified as follows when you were testifying regarding the cost of laying a 16-inch main on Bryant street near Fifth—

"A. (Intg.) Did I testify regarding Bryant street near Fifth?

"XQ. 5814. Yes, in 1897. 'Q. What does it cost a block to lay that 16-inch pipe? A. It will cost say about \$3.00 a foot with all the fittings and T's and crosses.' Did you so testify?

"A. I do not remember that, but that is probably based on an entirely different price for cast iron pipe, and it is certainly based on a very much lower price for labor" (pp. 2942-3).

Mr. Schussler's item in his estimate for this size of pipe (16 inch) is:

"District B: Under basalt, 62,670 feet, at \$4.50 a foot—\$282,015" (p. 1495).

Mr. Adams gave \$3.96 a foot (p. 5314).

In the Water Rate Investigation of 1897, Mr. Schussler gave the cost price of some 8-inch pipe from 33rd avenue to the Cliff House at \$1.10 a foot, as follows:

"XQ. 5815. . . . 'THE CHAIRMAN—Q. What was the cost of that pipe for the accommodation of Mayor Sutro?

"A. About 6,000 feet.

"Q. How much was that?

"A. That is probably worth about \$7,500.

"Q. As much as that?

"A. Yes, sir. In the first place, it weighs 45 lbs. to the foot; it cost us about 2½ cents a lb. laid, including hauling, labor, laying, etc.; that would be allowing over one dollar a foot, say \$1.10.' Did you so testify?

"A. Very likely, making a rough guess at it at the time before these city fathers, and in a hurry, and without any data before me. That was eight years ago, was it not?

"XQ. 5816. It was in 1897.

"A. Well, that was vastly different.

"XQ. 5817. Where did that pipe run?

"A. That runs along Lobos avenue where we laid the pipe on the northerly side, most of it; it was simply a sandy soil.

"XQ. 5818. What size was that pipe?

"A. 8-inch.

"XQ. 5819. What district would that be in?

"A. That would be in the outer district, what we call the easy district.

"XQ. 5820. District C; under what would it be laid?

"A. It would be laid right through the sandy soil.

"XQ. 5821. I mean under what kind of a pavement?

"A. In portions we laid it under macadam, but the macadam on Lobos avenue does not extend over the entire width; at least it did not then, and even if it were all laid under macadam it would be very much cheaper than if it were laid under any of the other pavements.

"XQ. 5822. That pipe is included in your total for the city pipe system.

"A. Yes, sir. That pipe now costs a little more.

"XQ. 5823. And that pipe you have estimated at \$1.70 a foot?

"A. Yes, sir; that is very close to it. That compares very well then with that other estimate because at that time I believe pipe was very much cheaper than it is now" (pp. 2944-5).

Further as to 8-inch pipe in District C:

"XQ. 5836. In the Water Rate Investigation of 1897 did you testify as follows:

"'Q. What would 600 feet of 8-inch pipe laid cost you in the Richmond district?

"'A. 600 feet, I suppose, could be laid there for—the pipe costs us, I think, about \$1.25 a foot; and include in that gates, crossings and T's, you might call it \$1.35 a foot. The crossings are about 70 feet; that would be 670 feet to the block.' Did you so testify?

"A. I am satisfied that that is substantially in accordance with the prices in those days.

"XQ. 5837. What district is the Richmond district in, A, B or C?

"A. That is in what we call the yellow district—the easy district.

"XQ. 5838. District C?

"A. Yes, sir, the third district.

"XQ. 5839. What is the character of the pavement out there?

"A. All macadam. In those days there was a great deal of country there that had not even macadam, but assuming that it was macadam that is about a fair price, about \$1.35 a foot.

"XQ. 5840. And your present testimony is \$1.70 a foot?

"A. Yes, sir, that is what it costs us now" (pp. 2947-8).

Mr. Schussler's item in his estimate for this 8-inch pipe is:

"District C: under macadam, 201,270 ft. at \$1.70 a ft.—\$342,159" (p. 1494).

Mr. Adams gave \$1.54 a foot (p. 5313).

OBSTRUCTIONS UNDER PAVEMENTS.

Prior to submitting his estimates, Mr. Schussler said:

"In the following estimates of cost of constructing our distributive pipe system, the classification not only as to character and kind of pavements removed and reconstructed, but also as to the difficulties encountered beneath the pavements, have entered as factors in determining the various cost items of the complete system" (p. 1454).

In his direct examination Mr. Schussler deals at great length with these obstructions met with under the pavements in District A, in the shape of city sewers, gas mains, telephone and electric light conduits, etc. (pp. 1450-3), and it might be supposed that all these obstacles were actually encountered in the laying of the pipe, but the obstructions as enumerated by Mr. Schussler are of the present time (his own testimony showing that the number of these obstructions are constantly increasing, p. 1456), while the bulk of the pipe in District A, where these present-day obstructions are most largely met with, was among the earliest pipe laid.

COMPARATIVE ESTIMATES ON COST OF CAST IRON PIPE LAID COMPLETE.

Various figures are given in the record on the cost of laying cast-iron pipe in different cities, but in the majority of cases these figures are not readily comparable with those of Messrs. Schussler, Adams and Schuyler on the cost in San Francisco, owing either to the statement that no allowance was made for pavements, or omission to mention the class of pavement. Table No. 10 gives units per foot from the record on the cost complete in Los Angeles and Pasadena under bituminous pavements in comparison with the estimates of Messrs. Schussler, Adams and Schuyler on the cost in San Francisco.

TABLE No. 10.

Comparison of Estimate Prices on Cast Iron Pipe Laid in San Francisco With Those Given for Los Angeles and Pasadena.

	Los Angeles.		Gates and Specials.		Pasadena.		Districts applying under estimates of Messrs. Schussler, Adams and Schuyler.		Mr. Schussler's Estimate.		Mr. Adams' Estimate.		Mr. Schuyler's Estimate.	
	Messrs. Adams and Schuyler. (Not inclusive of gates and specials.) Col. No. 1.	Highest figure given by Mr. Adams on each size of pipe in San Francisco. Col. No. 2.	Totals of columns Nos. 1 and 2. Col. No. 3.	Mr. Adams. (Not inclusive of gates and specials.) Col. No. 4.	Mr. Adams. (Not inclusive of gates and specials.) Col. No. 5.	Mr. Adams. (Not inclusive of gates and specials.) Col. No. 6.			Col. No. 6. \$1.65 (p. 1493)	Col. No. 7. \$1.20 (p. 5313)	Col. No. 8. \$1.35 (p. 5584)	Col. No. 8. \$1.35 (p. 5584)	Col. No. 8. \$1.35 (p. 5584)	Col. No. 8. \$1.35 (p. 5584)
4-inch ..	\$.83 (pp. 5272, 5585)	\$0.05 (p. 5313)	\$0.88		{ " B	1.35 "			1.35	1.04 "		1.19 (p. 5585)		
6-inch ..	.95 (pp. 5276, 5585)	.08 "	1.03	\$0.912 (p. 4957)	{ " A	2.45 (p. 1494)			2.45	1.78 "		1.90 "		
8-inch ..	1.26 (pp. 5276, 5586)	.10 "	1.36	1.27 (p. 4957)	{ " A	3.15 "			3.15	2.21 "		2.30 "		
10-inch ..	1.55 (pp. 5278, 5586)	.13 "	1.68	1.734 (p. 4958)	{ " B	2.65 "			2.65	1.96 "		2.05 "		
12-inch ..	1.89 (pp. 5279, 5586)	.16 (p. 5314)	2.05		{ " A	4.10 "			4.10	2.79 "		2.90 (p. 5586)		
16-inch ..	2.68 (pp. 5280, 5587)	.25 "	2.93		{ " B	3.45 "			3.45	2.49 "		2.60 "		
20-inch ..	3.62 (p. 5587)	.35 "	3.97		{ " A	5.20 "			5.20	3.35 (p. 5314)		3.43 "		
24-inch ..	4.09 (pp. 5281-2, 5587)	.49 "	4.58		{ " B	4.30 "			4.30	3.01 "		3.10 "		
					{ " A	6.60 (p. 1495)			6.60	4.90 "		5.00 "		
					{ " B	5.50 "			5.50	4.39 "		4.50 "		
					{ " A	9.50 "			9.50	6.79 "		6.90 (p. 5587)		
					{ " B	7.90 "			7.90	6.10 "		6.22 "		
					{ " A	12.80 "			12.80	9.25 "		9.37 "		
					{ " B	10.70 "			10.70	8.28 "		8.40 "		

BERNAL HEIGHTS TUNNELS.

These are two tunnels leading the extension of the Crystal Springs 44 inch pipe through two ridges at Bernal Heights which are included by Mr. Schussler in his estimates on the City Pipe System under the classification of "Special Structures." Following will be found Table No. 11, giving the estimates submitted on the drifting and bricking of these tunnels, together with figures on cost supplied by Mr. Higgins, who did the work under contract. It will be noted that the difference between Mr. Schussler's estimates and cost given by Mr. Higgins equals \$19,599.88, being an increase of over 100 per cent on cost.

TABLE No. 11.

BERNAL HEIGHTS TUNNELS.

Drifting.

	<i>Mr. Schussler.</i>	<i>Mr. Adams.</i>	<i>Mr. Higgins.</i>
Length of tunnels....	1345 ft. (p. 1500)	1345 ft. (p. 5285)	1343 ft. (p. 23)
Cost per lineal foot....	\$9.00 (p. 1500)	\$9.00 (p. 5285)	\$7.87½ (p. 25)
Length timbered.....			337 ft. (p. 23)
Cost of drifting.....	\$13,310 (p. 1500)	\$12,100 (p. 5285)	\$10,591.87 (p. 24)
	(inclusive of 10%)		

Brickwork.

Total number of bricks..	403,500 (p. 1500)	403,500 (p. 5285)	209,820 (p. 25)
Total cost per 1000.....	\$55.70 (about, computed)	\$32.00 (p. 5285)	\$37.50 (p. 24)
Total cost of brickwork.	\$24,750 (p. 1500)	\$12,912 (p. 5285)	\$7,868.25 computed
	(inclusive of 10%)		

In the above table the number of brick used, as named by Mr. Higgins, is little more than half the figure given by Mr. Schussler. Possibly if figures on quantities could be supplied from the record, it would be found that Mr. Schussler's quantities on many of the structures were similarly exaggerated, and, as Messrs. Adams and Schuyler adopted Mr. Schussler's quantities in all cases, this has an important bearing on the estimates of those witnesses.

The following testimony was given by Mr. Higgins, the contractor:

"Q. 58. What was the next piece of work you did for the Spring Valley Water Works?

"A. In 1884 I had a contract for drifting and timbering two tunnels through Bernal Heights, one was 1,120 feet long and one was 223 feet long. My contract price for the drifting of these tunnels was \$7.75 per lineal foot, which included the furnishing of everything necessary to drift the tunnels and the timbering of the same. There was no timbering in the 223 foot tunnel, but there was 377 feet of timbering in the 1,120 foot tunnel. I employed nine men on the work and paid them \$2.00 a day and board.

"Q. 59. Mr. Schussler, on page 1500 of his testimony, estimates the drifting of 1,345 feet of tunnel at \$12,100. Is that what it cost you?

"A. I received \$7.75 a foot for drifting both of those tunnels. That would make the cost to the company, for 1,345 feet of tunnel, \$10,591.87.

"Q. 60. Did you do the bricking of the pipe in these tunnels?

"A. Yes, I did, but it was not done under contract. It was day work. I started the work. I was there 20 days and then I went on other work. The same men stopped there and finished the tunnel. I got over there every chance I had to see them. I did not finish it, I only started it.

"Q. 61. Mr. Schussler, on page 1500 of his testimony, testified that, 'Bricking in the pipe solid, as heretofore de-

scribed, required 403,500 brick, inclusive of all material, help, etc., \$22,500." What is your estimate of the cost complete, including everything, for the bricking in of the pipe in the two tunnels. This memorandum which I now hand you, was made by you at the time, was it not?

"A. Yes, I made this out. That pipe is 3 feet 8 inches in diameter; add 8 inches to that, and take three times that and you will get the circumference of that as 13 feet. 12 brick to the foot gives me 156 brick to the foot, or 1,404 brick for 9 feet. There were employed in doing 9 feet of masonry the following:

2 masons, one day.....	\$12.00
4 laborers, one day.....	9.00
1,400 brick at \$12.50 per thousand.....	17.50
Cement and sand, at \$9 per thousand....	13.50

Making a total cost for 9 feet, per thousand brick\$52.00
or \$5.80 per foot, or \$37.50 per thousand.

"Total cost of drifting and the masonry:

The drifting was.....	\$7.87½
The masonry cost.....	5.80

Making a total of.....\$13.67½

"The masons could not lay any more brick than boiler-makers put in pipe for. They put in three pipe a day. There was one machinist and two laborers employed in putting in three pipe a day. That is what they did for a day's work: not any more or less. The length of the tunnels, the long tunnel was 1,120 feet and the short tunnel was 223 feet. That was an average of 700 brick per man, or \$15 per thousand for the labor; all complete it was \$37.50 per thousand.

"Q. 62. Mr. Schussler estimates that 403,500 brick were used in bricking in the pipe in those two tunnels; is that the fact?

"A. No, sir. I figure that we laid 156 brick to the foot, which would mean a total, for 1,345 feet, of 209,820 brick.

"Q. 63. Was the back-filling of brick or of earth?

"A. We set two rings of brick about the pipe and then had it filled in with earth. There was no back-filling of brick" (pp. 23-5).

ALAMEDA CREEK SYSTEM.

The detail estimates of the several witnesses on the various structures included in this system are shown on Table No. 12.

SUNOL FILTER GALLERIES.

Reference to Table No. 12 on the Alameda Creek System will show that whilst Mr. Adams estimated the Sunol Filter Beds, Sunol Dam and Laguna Creek Ditch at \$275,193 (p. 5202), Mr. Schussler gave a total figure of \$402,000 (p. 1112), or an excess of 46 per cent over Mr. Adams' estimate.

On the excavation work of the upper and lower filter galleries, done by plows and scrapers, Mr. Schussler gave a total of \$73,480 (inclusive of 10 per cent) in respect to the 190,900 cubic yards so excavated (p. 1092). This works out at about 35 cents per cubic yard, which is the figure used by Mr. Adams, who gave a total of \$66,815 (p. 5190), the difference between their estimates (\$6,665) being the usual ten per cent added by Mr. Schussler.

The minutes of the company (Book "E") show that this excavation was let by contract to Mr. John Beck and Messrs. A. E. Buckman Co. at a price of 22½

cents per cubic yard (pp. 533-4, 535-6). Accepting Mr. Schussler's quantities, there would be a difference between Mr. Schussler's estimate and cost according to contract price of \$30,527.50.

Ten thousand five hundred and fifty cubic yards of this excavation required timbering, according to Mr. Schussler, and on this work Mr. Schussler used a unit of \$3.00 a cubic yard (p. 1093) as against Mr. Adams' figure of \$2.00 (p. 5190). The difference between their estimates, in respect to this timbering work, amounts to \$13,815.

On the 35,350 cubic yards of deep timbered cuts, Mr. Schussler gave a total of \$77,660 (inclusive of 10 per cent), which is about \$2.00 a cubic yard (p. 1098), while Mr. Adams used figures of 35 cents covering 23,600 cubic yards of this work and \$2.00 on 11,750 cubic yards, his total being \$31,760 (p. 5198), or \$45,900 less than Mr. Schussler's estimate. In this case, Mr. Schussler gave a figure 135 per cent excess over Mr. Adams'.

In the building of the concrete galleries in the bottom of the deep-timbered cuts, Mr. Schussler estimated that 263,752 cubic feet of concrete was required and totaled this at \$116,000 (inclusive of 10 per cent), which is at the rate of 40 cents a cubic foot (p. 1101). Mr. Adams put the cost at 31 cents a cubic foot or \$81,763 (p. 5199). The total cost, including additional work of filling in ditch, pipes, etc., is given by both Messrs. Adams and Schuyler at \$100,533 (pp. 5199,

249

103,784

204

738

\$2,587,859

ne, 54-inch Pipe Line and Submarine Pipe Lines.

MR. SCHUESSLER										MR. ADAMS										MR. SCHUYLER										MR. GRUNSKY									
STRUCTURES.	Contents.	Unit Price.	Estimate.	Total Estimate.	Page of Testimony.	Unit Price.	Estimate.	Total Estimate.	Page of Testimony.	Unit Price.	Estimate.	Total Estimate.	Page of Testimony.	Unit Price.	Estimate.	Total Estimate.	Page of Testimony.	Unit Price.	Estimate.	Total Estimate.	Page of Testimony.																		
Alameda 36-inch Pipe Line— 100 ft. for contingencies.	1,410 cu. yds. 8,578,000 lbs.		\$124,700.00		1155	\$.074	\$107,400.00		5520		\$107,400.00		5520		\$107,400.00		5520		\$107,400.00		5520																		
Trench Through Marsh.			\$11,137,000.00		1156		\$86,325.00		5520		\$86,325.00		5520		\$86,325.00		5520		\$86,325.00		5520																		
100 ft. for contingencies.			\$1,400.00		1157				5521				5521				5521				5521																		
Alameda 36-inch Pipe Line— 100 ft. for contingencies.	3,005,000 lbs.	.166	\$1,780.00	\$1,220,000.00	1157	.166	\$ 982,655.00		5522		\$ 982,655.00		5522		\$ 982,655.00		5522		\$ 982,655.00		5522																		
Trench Through Marsh.			\$1,400.00		1158				5523				5523				5523				5523																		
100 ft. for contingencies.			\$1,400.00		1159				5524				5524				5524				5524																		
Alameda 36-inch Pipe Line— 100 ft. for contingencies.	13,683 ft.		\$16,000.00	\$39,000.00	1160				5525				5525				5525				5525																		
100 ft. for contingencies.			\$16,000.00		1161				5526				5526				5526				5526																		
Alameda 36-inch Pipe Line— 100 ft. for contingencies.	13,683 ft.		\$16,000.00	\$39,000.00	1162				5527				5527				5527				5527																		
100 ft. for contingencies.			\$16,000.00		1163				5528				5528				5528				5528																		
Alameda 36-inch Pipe Line— 100 ft. for contingencies.	13,683 ft.		\$16,000.00	\$39,000.00	1164				5529				5529				5529				5529																		
100 ft. for contingencies.			\$16,000.00		1165				5530				5530				5530				5530																		
Alameda 36-inch Pipe Line— 100 ft. for contingencies.	13,683 ft.		\$16,000.00	\$39,000.00	1166				5531				5531				5531				5531																		
100 ft. for contingencies.			\$16,000.00		1167				5532				5532				5532				5532																		
Alameda 36-inch Pipe Line— 100 ft. for contingencies.	13,683 ft.		\$16,000.00	\$39,000.00	1168				5533				5533				5533				5533																		
100 ft. for contingencies.			\$16,000.00		1169				5534				5534				5534				5534																		
Alameda 36-inch Pipe Line— 100 ft. for contingencies.	13,683 ft.		\$16,000.00	\$39,000.00	1169				5535				5535				5535				5535																		
100 ft. for contingencies.			\$16,000.00		1170				5536				5536				5536				5536																		
Alameda 36-inch Pipe Line— 100 ft. for contingencies.	13,683 ft.		\$16,000.00	\$39,000.00	1170				5537				5537				5537				5537																		
100 ft. for contingencies.			\$16,000.00		1171				5538				5538				5538				5538																		
Alameda 36-inch Pipe Line— 100 ft. for contingencies.	13,683 ft.		\$16,000.00	\$39,000.00	1171				5539				5539				5539				5539																		
100 ft. for contingencies.			\$16,000.00		1172				5540				5540				5540				5540																		
Alameda 36-inch Pipe Line— 100 ft. for contingencies.	13,683 ft.		\$16,000.00	\$39,000.00	1172				5541				5541				5541				5541																		
100 ft. for contingencies.			\$16,000.00		1173				5542				5542				5542				5542																		
Alameda 36-inch Pipe Line— 100 ft. for contingencies.	13,683 ft.		\$16,000.00	\$39,000.00	1173				5543				5543				5543				5543																		
100 ft. for contingencies.			\$16,000.00		1174				5544				5544				5544				5544																		
Alameda 36-inch Pipe Line— 100 ft. for contingencies.	13,683 ft.		\$16,000.00	\$39,000.00	1174				5545				5545				5545				5545																		
100 ft. for contingencies.			\$16,000.00		1175				5546				5546				5546				5546																		
Alameda 36-inch Pipe Line— 100 ft. for contingencies.	13,683 ft.		\$16,000.00	\$39,000.00	1175				5547				5547				5547				5547																		
100 ft. for contingencies.			\$16,000.00		1176				5548				5548				5548				5548																		
Alameda 36-inch Pipe Line— 100 ft. for contingencies.	13,683 ft.		\$16,000.00	\$39,000.00	1176				5549				5549				5549				5549																		
100 ft. for contingencies.			\$16,000.00		1177				5550				5550				5550				5550																		
Alameda 36-inch Pipe Line— 100 ft. for contingencies.	13,683 ft.		\$16,000.00	\$39,000.00	1177				5551				5551				5551				5551																		
100 ft. for contingencies.			\$16,000.00		1178				5552				5552				5552				5552																		
Alameda 36-inch Pipe Line— 100 ft. for contingencies.	13,683 ft.		\$16,000.00	\$39,000.00	1178				5553				5553				5553				5553																		
100 ft. for contingencies.			\$16,000.00		1179				5554				5554				5554				5554																		
Alameda 36-inch Pipe Line— 100 ft. for contingencies.	13,683 ft.		\$16,000.00	\$39,000.00	1179				5555				5555				5555				5555																		
100 ft. for contingencies.			\$16,000.00		1180				5556				5556				5556				5556																		
Alameda 36-inch Pipe Line— 100 ft. for contingencies.	13,683 ft.		\$16,000.00	\$39,000.00	1180				5557				5557				5557				5557																		
100 ft. for contingencies.			\$16,000.00		1181				5558				5558				5558				5558																		
Alameda 36-inch Pipe Line— 100 ft. for contingencies.	13,683 ft.		\$16,000.00	\$39,000.00	1181				5559				5559				5559				5559																		
100 ft. for contingencies.			\$16,000.00		1182				5560				5560				5560				5560																		
Alameda 36-inch Pipe Line— 100 ft. for contingencies.	13,683 ft.		\$16,000.00	\$39,000.00	1182				5561				5561				5561				5561																		
100 ft. for contingencies.			\$16,000.00		1183				5562				5562				5562				5562																		
Alameda 36-inch Pipe Line— 100 ft. for contingencies.	13,683 ft.		\$16,000.00	\$39,000.00	1183				5563				5563				5563				5563																		
100 ft. for contingencies.			\$16,000.00		1184				5564				5564				5564				5564																		
Alameda 36-inch Pipe Line— 100 ft. for contingencies.	13,683 ft.		\$16,000.00	\$39,000.00	1184				5565				5565				5565				5565																		
100 ft. for contingencies.			\$16,000.00		1185				5566				5566				5566				5566																		
Alameda 36-inch Pipe Line— 100 ft. for contingencies.	13,683 ft.		\$16,000.00	\$39,000.00	1185				5567				5567				5567				5567																		
100 ft. for contingencies.			\$16,000.00		1186				5568				5568				5568				5568																		
Alameda 36-inch Pipe Line— 100 ft. for contingencies.	13,683 ft.		\$16,000.00	\$39,000.00	1186				5569				5569				5569				5569																		
100 ft. for contingencies.			\$16,000.00		1187				5570				5570				5570				5570																		
Alameda 36-inch Pipe Line— 100 ft. for contingencies.	13,683 ft.		\$16,000.00	\$39,000.00	1187				5571				5571				5571				5571																		
100 ft. for contingencies.			\$16,000.00		1188				5572				5572				5572				5572																		
Alameda 36-inch Pipe Line— 100 ft. for contingencies.	13,683 ft.		\$16,000.00	\$39,000.00	1188				5573				5573				5573				5573																		
100 ft. for contingencies.			\$16,000.00		1189				5574				5574				5574				5574																		
Alameda 36-inch Pipe Line— 100 ft. for contingencies.	13,683 ft.		\$16,000.00	\$39,000.00	1189				5575				5575				5575				5575																		
100 ft. for contingencies.			\$16,000.00		1190				5576				5576				5576				5576																		
Alameda 36-inch Pipe Line— 100 ft. for contingencies.	13,683 ft.		\$16,000.00	\$39,000.00	1190				5577				5577				5577				5577																		
100 ft. for contingencies.			\$16,000.00		1191				5578				5578				5578				5578																		
Alameda 36-inch Pipe Line— 100 ft. for contingencies.	13,683 ft.		\$16,000.00	\$39,000.00	1191				5579				5579				5579				5579																		
100 ft. for contingencies.			\$16,000.00		1192				5580				5580				5580				5580																		
Alameda 36-inch Pipe Line— 100 ft. for contingencies.	13,683 ft.		\$16,000.00	\$39,000.00	1192				5581				5581				5581				5581																		
100 ft. for contingencies.			\$16,000.00		1193				5582				5582				5582				5582																		
Alameda 36-inch Pipe Line— 100 ft. for contingencies.	13,683 ft.		\$16,000.00	\$39,000.00	1193				5583				5583				5583				5583																		
100 ft. for contingencies.			\$16,000.00		1194				5584				5584				5584				5584																		
Alameda 36-inch Pipe Line— 100 ft. for contingencies.	13,683 ft.		\$16,000.00	\$39,000.00	1194				5585				5585				5585				5585																		
100 ft. for contingencies.			\$16,000.00		1195				5586				5586				5586				5586																		
Alameda 36-inch Pipe Line— 100 ft. for contingencies.	13,683 ft.		\$16,000.00	\$39,000.00	1195				5587				5587				5587				5587																		
100 ft. for contingencies.			\$16,000.00		1196				5588				5588				5588				5588																		
Alameda 36-inch Pipe Line— 100 ft. for contingencies.	13,683 ft.		\$16,000.00	\$39,000.00	1196				5589				5589				5589				5589																		
100 ft. for contingencies.			\$16,000.00		1197				5590				5590				5590				5590																		
Alameda 36-inch Pipe Line— 100 ft. for contingencies.	13,683 ft.		\$16,000.00	\$39,000.00	1197				5591				5591				5591				5591																		
100 ft. for contingencies.			\$16,000.00		1198				5592				5592				5592				5592																		
Alameda 36-inch Pipe Line— 100 ft. for contingencies.	13,683 ft.		\$16,000.00	\$39,000.00	1198				5593				5593				5593				5593																		
100 ft. for contingencies.			\$16,000.00		1199				5594				5594				5594				5594																		
Alameda 36-inch Pipe Line— 100 ft. for contingencies.	13,683 ft.		\$16,000.00	\$39,000.00	1199				5595				5595				5595				5595																		
100 ft. for contingencies.			\$16,000.00		1200				5596				5596				5596				5596																		
Alameda 36-inch Pipe Line— 100 ft. for contingencies.	13,683 ft.		\$16,000.00	\$39,000.00	1200				5597				5597				5597				5597																		
100 ft. for contingencies.			\$16,000.00		1201				5598				5598		</																								

5577), or \$37,067 less than Mr. Schussler's total of \$137,600.00 (p. 1101-5).

Mr. Adams mentioned that in certain of the reservoir work at Astoria, the cost of concreting was \$6.32 per cubic yard, or about 23 cents a cubic foot, which is considerably lower than his estimate on this work at Sunol (p. 5201).

In regard to the use of modern machinery on these cuts, Mr. Adams testified:

"XQ. 1324. Were there any conditions on these filter gallery cuts that would make steam shovel work more advisable?

"A. I think there is no doubt but what a steam shovel could be used on that work. I do not think there is any question at all about it" (p. 5194).

COST FIGURES ON THE SUNOL DIVISION OF THE ALAMEDA CREEK SYSTEM.

In Mr. Reynolds' Exhibit No. 116, the following cost figures appear:

Sunol Filter Beds.....	\$255,030.47
Sunol Aqueduct	459,510.90
	<hr/>
	\$714,541.37

This covers the two items given by Mr. Schussler (see Table No. 4) as follows:

Sunol Filter Beds, Laguna Ditch and	
Sunol Dam	\$402,000.00
Sunol Aqueduct	470,000.00
	<hr/>
	\$872,000.00

Mr. Schussler gave the dates of construction of these structures as:

Sunol Filter Beds and Aqueduct—

Commenced in 1899, finished in 1900 (p. 1719).

Laguna Creek Ditch—

Constructed in 1901 (p. 1720).

An excess over cost of \$157,458.63 covering works constructed three to five years previously is absolutely unexplainable, as any increase in cost of labor could not account for such an enormous difference.

SUNOL DAM.

Mr. Adams estimated this dam at \$28,784 (p. 5202), whilst Mr. Schussler placed it at \$40,000 (p. 1110), Mr. Schuyler giving a total price (without details) of \$37,094 (p. 5577). The difference between Messrs. Schussler and Adams is made up in the excavation and concrete, Mr. Schussler's unit price on the former being \$4.00 a cubic yard as against Mr. Adams' \$3.00, and in the latter Mr. Schussler gave 40 cents a cubic foot as compared with Mr. Adams' 31 cents (pp. 1108, 1110 and 5202).

Mr. Schuyler testified as to present cost of construction of this dam, as follows:

"XQ. 599. . . . Do you think that a dam like that would cost more or less in 1903 and 1904 than it would cost when it was built?

"A. I do not recollect just when that was built.

"XQ. 600. It was built about 1890, and the addition was made in about 1896 or 1897, I think.

"A. I think there would be very little difference; possibly less at the time it was built than to have built it in 1903 and 1904. I think labor was much more plentiful at that time than it has been in the last two or three years" (p. 5577).

LAGUNA CREEK DITCH.

Mr. Adams in cross-examination testified in connection with his estimate of \$9.00 per lineal foot for drifting the tunnel through the bluff (between "C" and "C1" on Complainants' Exhibit No. 56):

"XQ. 1275. Did you accept Mr. Schussler's figure as to the size of that tunnel?

"A. I have no doubt but what I did. I have accepted his schedule of quantities right through" (p. 5186).

And:

"XQ. 1278. Did you have any information as to the character of the earth or rock through which this tunnel was drifted?

"A. No, nothing other than as given in his description. I have seen the location of the tunnel, and the character of the point through which it is driven" (p. 5186).

And again:

"XQ. 1283. Did you make any independent estimates to determine whether or not it would take 21 cubic feet of concrete for a lineal foot of that tunnel?

"A. I have not made any check at all upon his quantities. I have accepted his schedules as they stand" (p. 5187).

Mr. Schussler gave a total for the concreting of this tunnel of \$4906, being about 56 cents a cubic foot, or about \$15.00 a cubic yard (p. 1079). Mr. Adams used a unit of 36 cents per cubic foot, or \$9.70 a cubic yard (pp. 5186-7). On tunnel work at Astoria Mr. Adams stated that the cost of the concrete lining was \$6.05 per cubic yard (pp. 5129, 5184).

SUNOL AQUEDUCT.

While Mr. Adams estimated this aqueduct at \$324,608 (p. 5249), and Mr. Schuyler at \$318,245 (p. 5578), Mr. Schussler gave a figure of \$470,000 (p. 1130), or \$148,573 in excess of the average of the two first-named witnesses.

The principal item of difference, amounting to \$109,996, is in respect to the concreting of the five tunnels, on which Messrs. Adams and Schuyler gave a unit of 31 cents (pp. 5248 and 5577), against Mr. Schussler's figure of about 56 cents (p. 1127).

On the four flumes, Messrs. Schussler and Adams use their regular units for flumes, being 18 cents and 14 cents per foot respectively; Mr. Schussler's total being \$16,602 in excess of that of Mr. Adams (pp. 1127 and 5249).

PLEASANTON IMPROVEMENTS.

Mr. Reynolds gave the cost of the wells and other works at Pleasanton at \$82,443.05 (Exhibit No. 116), which is \$17,256.95 lower than Mr. Schussler's estimate of \$99,700.00 (p. 1062). This work stretched

over a number of years, from 1898 to 1902 (pp. 1718-20). An increase of 20 per cent in cost of construction between 1898 and the giving of the testimony by Mr. Schussler in October, 1904, can hardly be justified.

NILES DAM AND AQUEDUCT.

In his estimate of February, 1904, to the Board of Supervisors, Mr. Schussler gave a figure of \$93,000, based on figures obtained partly from the secretary of the company, and which were probably cost (p. 2509). This figure approximates very closely to that of Mr. Adams, \$95,326 (p. 5249), while Mr. Schuyler gave \$103,784 (p. 5578) and Mr. Schussler \$128,000 (p. 1139).

Mr. Hering considered that this structure should only be included at half value:

"XQ. 1785. Did you value the bed-rock dam at Niles and the aqueduct leading therefrom?

"A. I did.

"XQ. 1786. Is that in use in any way in supplying water to this city?

"A. It is not always in use, and I do not know whether it has been in use since I have examined the work, but I do know that it is an alternate supply, which, I think, is always valuable to have. I do not consider it worth to this project of supplying the city all that it would cost to build, but it has some value, and, therefore, when I considered this I could only use my judgment and I estimated it at half the value it would cost to reconstruct it today.

"XQ. 1787. And your estimate of what it would cost to reconstruct it today was taken from Mr. Schussler's testimony?

"A. That was taken from Mr. Schussler's testimony and divided by two and the quotient was added to my estimate.

"XQ. 1788. And you think that Mr. Schussler had put a double value on that over what it should be allowed for, do you?

"A. No, sir, I have no question but that it cost as much to reconstruct it as Mr. Schussler allowed.

"XQ. 1789. But you recognize he included the whole cost of reconstructing it in his final estimate of the value of this company's property?

"A. I believe now that he did.

"XQ. 1790. And you disagree with him to that extent?

"A. I disagree with him to that extent, yes, sir" (pp. 3762-3).

And:

"XQ. 1792. On what theory do you think this particular aqueduct should be only valued at half of what it cost?

"A. There extend between the Sunol dam and the Niles railroad bridge two lines along which water can be conveyed; one is that which was first used, namely, the creek bed from the Sunol dam to the Niles dam, thence an aqueduct, partly of brick, partly of flume, down to the Niles bridge, and there discharging into the old 36 inch pipe; another one, which is the one constructed later, of getting water from the Sunol dam to the Niles bridge, was an aqueduct consisting partly of tunnels and flumes; the latter delivers at a higher point than the other and, therefore, will increase the flow through the pipes from Niles to Belmont. This line is very important as it supplied one-half the water to the city. It consists partly of flumes. There may be at some time an accident, perhaps a fire, perhaps a slide, perhaps some other accident, which would unquestionably seriously affect the supply of water from Alameda sources, which is the better water delivered to the city, and, I would, therefore, consider that the immediate substitution of another line supplying this quantity, or nearly the full quantity of this good water would be of great advantage to the city. I did not think that it was of sufficient advantage to pay for the entire cost of these works and, it is my judgment, that half of the cost would be enough" (pp. 3763-4).

And:

"XQ. 1794. Why did you take the figure one-half upon this, that is, what led you to that, what system of reasoning?

"A. I did not think it was worth the entire cost because it would not have been constructed for that purpose in that way; it was there; the supply was improved, and, instead of taking it away, it was, in my opinion, wise to leave it as a safety-pipe controlling the entire aqueduct from the Sunol dam to the Niles bridge, and it was simply a matter of judgment that I thought it was one-half; I might have said two-thirds or I might have said two-fifths or something else; I had no definite points to guide me, and it was more a matter of judgment to say, well, it is worth about one-half, so I put it down" (p. 3764).

Mr. Grunsky, in his report to the Board of Public Works of February 17, 1904, included the Niles Dam and Aqueduct at one-half of the estimated cost of reduplication, and in a later report at full value:

"XQ. 559. I also find this language in that same report: 'The old works from the Niles dam across Alameda Creek to Niles are not essential to the system as now in use. It may, however, be difficult to separate them from the water rights which they helped to perfect. They would not now be constructed as a necessary part of the system, but being constructed they can be made, for a time at least, to serve a useful purpose in supplying water to riparian owners on Alameda Creek at and below Niles. It has been thought proper to appraise them at one-half of the estimated cost of duplicate.' Was that done?

"A. Yes, that was done in that report and, in the later report, finding it necessary to consider them either in use or out of use I have thought it proper to allow the entire \$108,000.

"XQ. 560. That was the full value and not the half?

"A. That was the full value and not the half.

"XQ. 561. Are you still of that opinion?

"A. I am of that opinion, that is, in this way, that the allowance of \$108,000, if in excess of the other figures of the appraisement of actual cost would be really an over-allowance. I have never received satisfactory information as to just how these works above Niles are in use" (pp. 422-3).

Mr. Schussler stated that the Niles Aqueduct had not been in use since the Sunol Aqueduct was built, except for supplying water to riparian owners down stream:

"XQ. 5472. Have you ever used the Niles aqueduct since the Sunol aqueduct was built?

"A. I have not, except for the purpose of carrying water through it for our various obligations down below. We would have to build something for that anyway, and as it would not do to build a construction there that would wash away with every little storm, we are now using the Niles aqueduct for the purpose of filling those needs. At the same time I have made a connection with the Niles aqueduct, between it and the new Alameda pipe line north of the bridge that crosses the Alameda Creek near Niles, so that at very short notice the water can be turned through the Niles aqueduct into the Alameda pipe.

"XQ. 5473. Could you not supply water to those farmers through the Sunol aqueduct?

"A. You mean for the irrigation farmers?

"XQ. 5474. The people to whom you supply water?

"A. Yes, we could, but it would be a great pity to give them the clear, filtered water which is needed badly in this city" (p. 2872).

As to the basis of his estimate on the Niles Aqueduct, Mr. Schussler testified:

"XQ. 5481. Can you give the actual cost of the Niles stone dam of the Niles aqueduct?

"A. No, sir, there is no record of it whatever. That was all based upon my judgment and experience" (p. 2874).

And:

"XQ. 5478. From what data did you make up your estimate on the Niles stone dam?

"A. There is no record whatever left of what that cost and there is no detail plan of it except my recollection of about the depth to which we went. I stated distinctly in my direct testimony that there were a number of structures on our works that had either been built prior to my time or that had been built by day's work, and we simply went down, in the case of a dam like this, to a first-class bed rock foundation, and I have made up from my recollection, as near as practicable, a profile of that dam, having the width of the dam visible at the top, with the bevel downward, we can come very close to the cubical contents of the dam.

"XQ. 5479. What kind of stone was it built of?

"A. Built of sandstone.

"XQ. 5480. Where did you get it?

"A. Got it close by there; a good many of the stones were got out of the creek near by, out of big hard boulders.

"XQ. 5481. What kind of rubble work did you use on the stone aqueduct?

"A. On the stone aqueduct it was rubble work that had been built there by our predecessor. I believe old General Vallejo built that. We strengthened it by lining it with brick-work on the inside, particularly, so as to make the inside surface very smooth. The old aqueduct, owing to the fact that it was rubble work, was somewhat rough in the surface against which the water ran.

"XQ. 5482. In making your estimate of that did you estimate what it would cost at the present time to build it of the same character of rubble work?

"A. Yes, as near as practicable, because I do not know how much cement was used in that work because I was not there at the time, but I have estimated that rubble work at a specially low figure because it is not quite up to the character of rubble work that we have built.

"XQ. 5483. Do you mean it is estimated according to the way that you would build it now or estimated according to what it would cost to build it now the way it was built?

"A. It is a compromise between the two. There was a piece of masonry and there was no man living who had seen it built, or the number of days or what time had been used on it; it being a very small fraction of a piece of work I took a specially low figure for that and estimated it at what it would cost to reproduce it the way it appears to be built. I would naturally see that the mortar was good, fair mortar, but I do not know what they, at that time used" (p. 2873-4).

As to the steel bridge at Niles, Mr. Schussler testified:

"XQ. 5482. How did you get the cost of the steel bridge at Niles?

"A. In 1887 we let a contract.

"XQ. 5483. Have you got that contract?

"A. I do not know whether we have, but I have the price we paid; it was \$9,650. Upon inquiry I found it would be about right to add $7\frac{1}{2}\%$ to that price at that time—18 years ago, so I placed that bridge, in my estimates, at \$10,300 which is but a slight advance over the actual cost 18 years ago.

"XQ. 5484. And then you added 10% more for incidentals?

"A. Yes, sir; all this work is subject to incidental expenses because the engineering department—superintendence and all that sort of thing—comes in in addition; that is not charged in the contract" (p. 2875).

STEM

MR.		
Estimates (Itemized).	Unit Price.	Page of Testimony.
\$ 3,150.00	\$.35	5140
10,000.00	1.00	5140
15,000.00	1.50	5140
9,000.00	2.00	5140
7,500.00	2.50	5140
8,000.00		5140

CRYSTAL SPRINGS SYSTEM

MR. SCHUSSLER					MR. ADAMS					MR. SCHUYLER					MR. GRUNSKY					
STRUCTURE.	Unit Price.	Estimates (Itemized).	Total Estimates.	Page of Testimony.	Unit Price.	Estimates (Itemized).	Total Estimates.	Page of Testimony.	Unit Price.	Estimates (Itemized).	Total Estimates.	Page of Testimony.	Unit Price.	Estimates (Itemized).	Total Estimates.	Page of Testimony.	Unit Price.	Estimates (Itemized).	Total Estimates.	Page of Testimony.
Lower Concrete Dam—																				
Removal of Top Soil.....	9,000 cu. yds.	\$.10	\$ 3,800.00	914	.38	\$ 3,420.00		5140	\$.35	\$ 3,150.00										
Excavation.....	10,000 cu. yds.	1.00	10,000.00	914	1.00	10,000.00		5140	1.00	10,000.00										
Excavation Rock.....	4,500 cu. yds.	1.50	15,000.00	914	1.50	15,000.00		5140	1.50	15,000.00										
Excavation.....	3,000 cu. yds.	2.50	7,500.00	915	2.50	7,500.00		5140	2.50	7,500.00										
Prospecting Shafts and Tunnels.....			8,000.00	915		8,000.00		5140		8,000.00										
10% for contingencies.....			8,000.00	916				5140												
Total for Excavation.....			\$ 58,000.00	916		\$ 52,920.00		5140		\$ 52,650.00										
Concrete Factory—																				
Trestle (Lumber).....	199,500 ft.		9,600.00	915		6,584.00		5140		6,983.00										
Sand Bin (Lumber).....	30,000 ft.		1,300.00	916		7,095.00		5140		1,050.00										
Platform (Lumber).....	215,000 ft.		12,000.00	916		40,500.00		5141		7,825.00										
Mixers, Warehouses, etc.....			40,500.00	916		63,560.00		5141		50,300.00										
10% for Incidentals.....			11,370.00	917				5141		40,500.00										
Total for Concrete Factory.....			125,000.00	917		78,229.00		5144		106,358.00										
Outlet Shaft—																				
Sinking Shaft.....	1,010 cu. yds.	6.00	6,060.00	924		5,050.00		5141		6,060.00										
Drifting Intake Tunnels.....	224 ft.	10.00	2,240.00	924-5		2,018.00		5141		2,018.00										
Brickwork Tunnel (per M.).....	330 ft.	18.50	6,105.00	925		5,544.00		5141		6,060.00										
Small Concrete Foundation.....	940,000	52.50	49,350.00	925		30,822.00		5141		5,540.00										
Three 44-in. Water Gates.....	600 cu. ft.	.45	270.00	929		240.00		5141		31,300.00										
Cast Iron Pipe in Shafts and Tunnels.....			5,040.00	929				5141		270.00										
Freight and Teaming.....			24,500.00	930				5141												
Two 22-in. Water Gates.....			600.00	930																
Three Fish Screens.....			800.00	930																
Platforms, Ladders, etc.....			3,040.00	930																
Labor on Pipes, Gates, Etc.....			8,850.00	930		37,828.00		5141		54,000.00										
54-in. Pipe.....	258 ft.		4,080.00	930																
44-in. Regulating Gate.....			8,570.00	930																
Upper Stand Pipe, etc.....			2,000.00	930																
10% for contingencies.....			1,300.00	930																
Total for Outlet Shaft.....			11,746.00	931																
Howard Cut—																				
Removal of Top Soil.....	7,400 cu. yds.	.40	2,960.00	931		81,510.00		5141		99,188.00										
Excavation and Timbering.....	5,200 cu. yds.	3.00	15,600.00	933	.38	1,786.00		5141	.35											
Concrete Fill.....	159,300 cu. ft.		55,750.00	933	2.50	13,000.00		5141	2.50											
Clay Puddle.....	268 cu. yds.	2.00	530.00	933	.35	55,755.00		5141	.33											
Puddle Clay Embankment.....	20,300 cu. yds.	1.80	36,500.00	933	1.50	492.00		5141	1.38											
Rip Rap.....	34,000 sq. ft.	.15	5,100.00	933	1.25	28,760.00		5141	1.26											
10% for contingencies.....			11,644.00	933	.11	3,740.00		5141	.11											
Total for Howard Cut.....			128,000.00	933		103,433.00		5142												
Removal 44-in. Pipe.....	8,400 ft.	2.00	16,800.00	933	1.00	8,400.00		5142		10,500.00										
Lumber in Flume.....	160,000 ft.	.16	25,600.00	933	.14	22,400.00		5142		22,400.00										
Clearing 1,300 acres.....			25,000.00	933				5142		25,000.00										
Building Roads, Fences, etc.....			35,000.00	937				5142		25,000.00										
Concrete and Stone Apron.....	11 miles		3,500.00	937				5142		35,000.00										
Rip Rap.....	7,000 cu. ft.	.50	4,900.00	938		4,340.00		5142		2,310.00										
10% for contingencies.....	21,000 cu. ft.	.03	11,020.00	939	.33			5142	.33											
Total for Extra Work.....			121,000.00	939		87,450.00		5142		95,210.00										
Main Dam—Concrete						1,399,080.00		5142												
Total: Lower Concrete Dam.....	157,200 cu. yds.	10.38	1,631,000.00	954	8.90			5142	9.00											
Upper Dam—																				
Removal of Top Soil.....	24,340 cu. yds.	.40	9,882.00	881, 2182				5142												
Puddle Cut.....	15,800 cu. yds.	3.00	47,400.00	883-4				5142												
Puddle Fill.....	24,200 cu. yds.	2.00	48,400.00	885				5142												
Main Embankment.....	146,340 cu. yds.	.70	102,438.00	886, 2182				5142												
Embankment, Fill of.....	45,600 cu. yds.	.45	20,520.00	887				5142												
Rip Rap.....	119,000 sq. ft.	.15	17,850.00	887				5142												
Concrete Waste Well.....	32,850 cu. yds.	.45	14,800.00	888				5142												
Wooden Chute.....	13,300 ft.	.16	2,128.00	889				5142												
Screens, etc.....			250.00	889				5142												
Outlet Tunnel—																				
Drifting.....	815 ft.	10.50	8,557.00	890				5170												
Sinking Shaft.....	177 cu. yds.	5.00	885.00	890				5170												
Brickwork Tunnel and Shaft (per M.).....	352,000 bricks	54.50	19,184.00	891				5170												
Brass Paved, Cast Iron 42-in. Gate.....			1,400.00	891				5170												
42-in. Wrought Iron Pipe.....	50,400 lbs.	.105	5,342.00	896				5170												
10% for contingencies.....			31,407.00	896-7				5170												
Total: Upper Dam.....			329,000.00	898				5170												
Buildings at Dam—																				
Upper Crystal Springs Cottage.....	35,000 cu. ft.	.12	4,200.00	898, 1004, 2182				5170												
Barn.....	15,700 cu. ft.	.03	470.00	977				5170												
Cottage at Upper Dam.....	10,000 cu. ft.	.12	2,280.00	977				5170												
Barn.....	21,000 cu. ft.	.03	630.00	978				5170												
Keeper's Cottage at Lower Dam.....	16,800 cu. ft.	.10	1,680.00	978				5170												
Barn and Sheds.....	21,000 cu. ft.	.03	630.00	978				5170												
Cook and Bunk House.....	51,600 cu. ft.	.03	1,548.00	978				5170												
10% for contingencies.....			1,113.00	978				5170												
Total: Buildings at Dam.....			12,500.00	978				5170												
Screenhouse and Tank at University Mound Reservoir.....																				
Pipe Line to San Francisco.....	686,800 lbs.	.086	59,064.00	1004				5170												
44-in. Pipe on Trestles.....	7,968,670 lbs.	.106	844,679.00	989	.069	47,389.00		5170	.069											
44-in. Pipe in Ditch.....			90,374.00	989	.094	749,055.00		5170	.093											
10% for contingencies.....			994,000.00	989				5170												
Trestles.....	6,792 ft.	4.00	27,168.00	990				5170												
10% for contingencies.....			29,800.00	990				5170												
Tunnel, 300 ft.—																				
Drifting and Timbering.....	300 ft.	9.00	2,700.00	990	9.00	2,700.00		5169	9.00	2,700.00										
Bricks (per M.).....	90,000	63.00	5,670.00	991	35.00	3,150.00		5169	36.60	3,294.00										
10% for contingencies.....			837.00	991				5170												
Stk Mile House Tunnel—																				
Drifting and Timbering.....	2,145 ft.	9.50	20,377.00	996	9.00	19,305.00		5169	9.00											
Bricks (per M.).....	430,000	58.00	24,940.00	996	34.45	14,779.00		5170	34.53											
10% for contingencies.....			4,331.00	996				5170												
Total: Pipe Line and Appurtenances.....			49,800.00	1005				5136												
10% for Incidentals.....																				
Total: Crystal Springs System.....			1,095,600.00	1005, 2182																

Mr. Dockweiler \$1,918,667.00 (page 647).
Mr. Fitzgerald 4,379,102.10 (page 433), includes the lands.

• Page of Testimony

CRYSTAL SPRINGS SYSTEM.

The detail estimates of the several witnesses on the structures included in this system are shown on Table No. 13.

CRYSTAL SPRINGS DAM.

The concrete work forming the main item of expenditure in the construction of the Crystal Springs Dam is dealt with in Table No. 14, which gives in the first seven columns items making up the units per cubic yard of Messrs. Schussler, Adams and Schuyler. While there is only a difference in the unit of 10 cents between Messrs. Adams and Schuyler, Mr. Schussler's unit exceeds that of Mr. Adams by \$1.38 per cubic yard. On a work of such magnitude, this means a big disproportion between the estimates, and, as shown, Mr. Schussler's total estimate exceeds the average of those of Messrs. Adams and Schuyler by \$224,796.00.

The other columns of the table show total units given by Messrs. Adams, Schuyler and Hering covering concrete work on other dams outside the works of complainant, to wit: Astoria, Hemet Dam, Portland and Stormville Reservoir, New York; and are furnished for comparison with the estimated figures on the Crystal Springs Dam.

Mr. Schussler's testimony on his method of arriving at the number of cubic yards of concrete in the dam, follows:

"XQ. 4945. How did you get the number of cubic yards of concrete in the main dam?

"A. That was calculated with great care and checked over several times, and the various methods of figuring coincided so closely with each other that this final total was set down as the standard quantity in the dam.

"XQ. 4946. Who made those figurings?

"A. They were partly made by one of my assistants and then they were checked by me taking the number of barrels of cement and knowing about what a barrel of cement makes in the shape of complete concrete, and they came so close that I adopted those figures as correct.

"XQ. 4947. Have you the number of barrels of cement?

"A. I have.

"XQ. 4948. In the form of bills?

"A. No, sir, but I have a list of them. Fortunately I have also from some old memorandum the different kinds and brands of cement that we used.

"XQ. 4949. And how many barrels of each?

"A. Yes, sir.

"XQ. 4950. What has become of the original bills?

"A. I have no doubt you can find them with the secretary. He is the custodian of all those vouchers" (pp. 2759-60).

Mr. Adams testified that he adopted Mr. Schussler's figures on the number of cubic yards of concrete in the dam, as follows:

"XQ. 1110. Did you make any estimate of the number of cubic yards of concrete masonry in the main dam, or did you accept Mr. Schussler's figures of the amount there?

"A. I accepted his figures as to the quantity.

"XQ. 1111. A very simple computation would give the amount of masonry in that dam, would it not?

"A. No, not a very simple computation. In a dam of that character there is much uncertainty as to the quantity of material in the foundations of it, that is, unless one has full and complete plans showing the character of the foundation work.

"XQ. 1112. Did you examine those plans which are on file as exhibits in this case?

"A. I have seen the plans, yes, but I have not attempted any computation of the quantity of yardage. I have accepted Mr. Schussler's schedule in that particular" (p. 5151).

Mr. Schuyler also accepted Mr. Schussler's figures as to quantity of concrete in the dam (p. 5560).

CONCRETE PLANT AT CRYSTAL SPRINGS DAM.

The concrete plant used in the manufacture of the concrete for the Crystal Springs Dam appears in Mr. Schussler's estimate at a figure of \$125,000.00 (p. 917), and while Messrs. Adams and Schuyler differed considerably from Mr. Schussler in their estimate on this concrete plant they accepted his quantities, which were obtained on a very indefinite basis, as the following shows:

"XQ. 4876. In the construction of the concrete factory for the trestle, platform, buildings, etc., how did you get the number of feet board measure of pine redwood on the trestle and platform?

"A. The lumber was taken by one of my assistants from the tally sheets of the lumber used in the construction.

"XQ. 4877. On the tally sheets is the amount that was used for the trestle segregated?

"A. Yes, sir.

"XQ. 4878. Will you give us those tally sheets in segregation?

"A. The trestle——

"XQ. 4879. I mean the original tally sheets?

"A. I do not know whether I have them. Those were memoranda made at the time by one of my assistants segregating the lumber for the different portions of this concrete factory. At the time we bought the lumber for the purpose of constructing the concrete factory the total amount of lumber was made out and a requisition was made for it. There are no records in the office of the secretary or anybody else which shows how much lumber went into one part of this factory, or how much into another; there is simply a sum total of lumber.

"XQ. 4880. How did you get at the different amounts?

"A. One or two of my assistants have gone to work and worked up about what proportion of lumber was placed in one part and what in another; for instance, in the trestle and in the sand bin and in the platform, and in that manner this lumber was proportioned as nearly as practicable" (pp. 2749-50).

PRESENT AND REDUPLICATION VALUE OF CRYSTAL
SPRINGS DAM.

In contrast with Mr. Schussler's statements as to greater cost of constructing the Crystal Springs Dam in 1903-04 over 1886-90, when this dam was built (pp. 1715-6), the following is given from Mr. Schuyler's testimony:

"XQ. 410. Would you consider now, that in your judgment, as an engineer familiar with this class of work, at the time the Crystal Springs lower dam was actually built, it would cost the same as it would cost in 1903 and 1904; that is, is that your opinion?

"A. I do not think there should be any material difference in that class of work" (p. 5553).

And as to the concrete foundations at the outlet of the tunnel in this dam, Mr. Schuyler said:

"XQ. 451. Do you think that work would cost the same in 1903 as it cost in 1888?

"A. Cost of cement was less in 1903 and 1904 than it was at the time this work was done, I think, and there may be sufficient difference in the cost of labor to offset that, so that the cost would be practically the same now as in the earlier periods" (p. 5558).

OUTLET SHAFT, TUNNELS, ETC., AT CRYSTAL SPRINGS
DAM.

Table No. 15 gives a comparison of cost figures and estimates on the drifting and bricking of these Outlet Works, showing the usual extravagance of Mr. Schussler's estimates.

TABLE No. 15.
Crystal Springs Dam—Outlet Works.
Drifting of Intake and Main Outlet Tunnels.

	Mr. Schussler.	Page.	Mr. Adams.	Page.	Mr. Schuyler.	Page.	Mr. Higgins.	Page.
	554 ft.	924-5	\$ 9.00	5141	554 ft.	5559	580 ft.	28
Length of drifting.....	\$10.00 per ft.	925	16.80	5141	\$ 9.00	5556 }	\$ 11.00	30
Cost of drifting—Intake tunnel.....	\$16.80 per ft.	925	7,560.00	5141	16.80	5556 }		
Cost of drifting—Main outlet Tunnel...	\$8,558.00 (inclusive of 10%)	924-5			7,556.00	5559 }	\$ 6,380.35	28, 30
Total for drifting.....								
Brickwork in Shaft, Intake and Main Outlet Tunnels.								
		925-6	\$ 13.84	5557	\$ 12.50	5557	\$ 12.50	30
Cost of brick at dam, per 1000 (including hauling, loading and unloading).....	\$15.85	925	\$ 940,000.00	5141	\$ 940,000.00	5559	\$ 1,050,000.00	29
Total number of brick.....	940,000	927	1,000.00	5146	1,000.00	5557		
Average laid per man per diem.....	500	926-7					2,257.00	29
Number of barrels cement.....	2,450 (computed)	926			10.00	5557	9,213.00	30
Cost of cement.....	\$7,497.00 (computed)	926					15.24	30
Labor per 1,000.....	\$26.36	928-9					(computed)	30
Total cost per 1,000.....	\$52.50	929	32.80	5141	33.30	5556	38.50	31
Total for brickwork.....	\$54,285.00 (inclusive of 10%)	925	30,832.00	5141	31,302.00	5559	38,347.20	30

Difference between Mr. Schussler's estimates and cost according to Mr. Higgins = \$18,115.45.

Difference between Mr. Schussler's estimates and average of estimates of Messrs. Adams and Schuyler = \$24,218.00.

Mr. Higgins, who superintended the construction, testified as to cost as follows:

"Q. 66. We will next take up the Crystal Springs tunnel. That is really the forebay and the outlet, is it not?

"A. The inlet and outlet and everything connected with getting in the water and getting it out. I was employed by the Spring Valley Water Works in drifting and bricking the Crystal Springs tunnel.

"Q. 67. In what year was that in?

"A. In 1887. The men employed in the drifting of the tunnel were paid \$2.00 a day and board. The contract for boarding the men was let to a man by the name of Price. He got \$4.00 a week for each man. I started in on that work as foreman, with twenty men under me. The men on the cars, and the roustabouts, got \$40 a month and board. I understood at first that work was to be done by contract; finally Mr. Schussler told me that he was not going to let the work by contract, and asked me if I wanted to go down and do it by the day. I said, 'Yes.' He said, 'What wages do you want?' I said, '\$200 a month.' He said, 'You go and do it, and do it the same as if you were under contract and let nobody know the difference; you will be under George'—meaning his brother, George Schussler. The tools used on the work I sold to the water company; there were cars, tracks, picks, shovels, drills, etc. I made out the pay sheets from my time-book and gave them to Mr. Lawrence.

"Q. 68. Have you any memorandum as to the cost of the labor, and incidentals in the drifting of the Crystal Springs tunnel?

"A. Yes, sir.

"Q. 69. What is that paper you have?

"A. This paper is an exact copy of one furnished to Mr. Schussler at his request shortly after I left the work of drifting and bricking the Crystal Springs tunnel.

"Q. 70. Will you give us the exact cost of drifting the Crystal Springs tunnel?

"A. The exact cost of drifting the Crystal Springs tunnel was \$6,380.35. That is the money they gave me for it. There were 580 feet of drifting. That is according to the

engineer's measurements of what I got, as near as I can get at it. Drift and shaft, at a cost of \$11 per foot.

"Q. 71. What was the cost of the labor per month?

"A. That is the labor.

"Q. 72. Have you it for each month?

"A. Yes, sir.

"Q. 73. Just read that.

"A.

June, 1887	\$1,871.25
July, 1887	1,037.80
August, 1887	1,032.50
September, 1887	1,103.35
October, 1887	1,098.58

Making a total of.....\$6,143.00

Powder and candles, \$237. I did not find those. The company had them there on the ground and supplied them. Mr. Schussler told me to keep account of everything I did there, so I did do. I did not pay for those.

"Q. 74. You also had charge of the bricking of said tunnel and you kept an account of the expenses thereof, did you?

"A. Yes, sir.

"Q. 75. Will you give us the cost of the labor employed on that work, the bricks used, and also the number of barrels of cement?

"A. Yes, sir. There were \$16,000.95 for masonry work on that tunnel, as follows:

November	\$ 1,012.35
December	1,628.55
January, 1888	2,468.75
February	2,093.00
March	1,209.45
April	707.30
May	1,428.70
June	1,684.45
July	1,744.60
August	1,612.15
September	420.25

Making a total of.....\$16,009.55

There were 1,050,000 brick.

"Q. 76. How many barrels of cement?

"A. 2,257 barrels.

"Q. 77. That is for what you call the Crystal Springs tunnel, but which is, in reality, the forebay and the outlet of the Crystal Springs reservoir as described by Mr. Schussler in his testimony?

"A. I presume so, yes.

"Q. 78. Taking into consideration the drifting of the shaft, the two inlet tunnels, and the main outlet therefrom, what is the total number of feet drifted by you on that work?

"A. 580 feet, according to the engineer's measurements. I did not measure it myself.

"Q. 79. What is your estimate of the cost, per lineal foot, of drifting this work?

"A. \$11 per lineal foot. The total cost, inclusive of everything, for the drifting of 580 feet, amounts to \$6,380.35, making the cost per lineal foot, \$11.

"Q. 80. What is your estimate of the complete cost of the Crystal Springs tunnel or forebay, that is, the drifting and the bricking of the same, inclusive of labor, bricks, cement and everything as far as you did the work?

"A.

580 feet of drifting, at \$11 per foot.....	\$ 6,380.00
2,257 barrels of cement, at \$3.75 per barrel.....	9,213.00
1,050,000 brick, at \$12.50 per thousand.....	13,125.00
Cost of labor in laying brick.....	16,009.55

Making a total cost of the work, complete, as far

as I did the work.....\$44,727.55

"Q. 81. You say that is the cost for as much of the work as you did. What do you mean by that?

"A. I mean I do not include the cost of some subsequent work which was done on the top of the shaft. I did all this work on that tunnel, with the exception of raising the top of the shaft.

"Q. 82. Mr. Schussler, in his direct testimony, at page 925, places the cost of the brick at \$52.50 per thousand; is that correct?

"A. No, sir. I estimate the cost of the brick as not over \$38.50 per thousand" (pp. 27-31).

Mr. Schuyler made the following statement with regard to present cost of drifting and brickwork in the main outlet tunnel of the Crystal Springs Dam:

"XQ. 438. The drifting of the main outlet tunnel, what was your cost there?

"A. \$16.80 per foot.

"XQ. 439. Do you consider that that would cost the same in 1903 and 1904 as it cost in 1888?

"A. Yes, I think practically so.

"XQ. 440. What do you estimate the brick at per thousand which were used for bricking the shaft and the intake tunnel, and the main outlet tunnel?

"A. \$33.30.

"XQ. 441. Mr. Adams gives \$32.80, and Mr. Schussler, \$52.50. Do you consider that that brickwork would cost the same in 1903 and 1904 as it cost in 1888?

"A. I think it would probably cost less at this time than in 1888, in some amount.

"XQ. 442. Mr. Schussler's estimate of that is nearly \$30 more, but you think it would be less; how do you account for that?

"A. I have not attempted to account for it" (pp. 5556-7).

HOWARD CUT.

Mr. Schussler did not have any data for his estimates on the Howard Cut, as the following shows:

"XQ. 4715. As to the Howard Cut, did you have data of the exact amount of excavation there?

"A. Of the cut, yes, we have that.

"XQ. 4716. Did you have data as to any of the rock or soil that you cut through?

"A. We simply cut down; it was done by the day's work.

"XQ. 4717. Did you have any data as to the character of it?

"A. Yes, it was very good clay material, extremely stiff. That was cut out with mattocks—most of it.

"XQ. 4718. Did you have separate accounts of the amount of labor you used there?

"A. No, sir, the men were set to work to dig it out" . . .

"XQ. 4719. Have you a record of the amount of timbering there?

"A. We have approximately the amount of timber that was required—*that is, from memory*. There is no separate record kept of that timber from other timber. There were hundreds of thousands of feet of timber ordered by our auditor or purchasing clerk for that dam. We used many hundreds of thousands of feet for trestles and everything else, and a portion of it went into this cut. You must remember that all of that work was done by the day. An order was simply sent in for 100,000 feet of lumber of such and such size and it was sent out.

"XQ. 4720. Is there any record of the various amounts of work put in in the various classes of work on that Howard Cut?

"A. No, sir. . . .

"XQ. 4721. Have you the pay-rolls of that Crystal Springs dam?

"A. I have not.

"XQ. 4722. Has anyone? Are they in existence?

"A. Possibly the secretary could let you know. We have only very close estimates of it. For the pay-roll you would have to apply to the secretary. I do not think the present secretary was here at that time.

"XQ. 4723. If you do not know the amount of timbering required for that cut nor the separate work that was done on it by the workmen, that is, how much of the time of the workmen was spent on that, how did you make up the estimate you have here?

"A. Because it is from my experience. I have had a great deal of experience in that kind of work, perhaps more than any one man on the Coast, and from that experience I know, from the character of work and from the work we

have done since in easier ground of less depth, but that required timber and where we fortunately kept an account of the work, we are able to judge very closely the cost of this work" (pp 2714-6).

As Mr. Adams accepted Mr. Schussler's quantities, it was on this guesswork that he based his estimates.

"XQ. 1096. How do you get your figure of \$2.50 for the excavation of the cut?

"A. I would rather think that I accepted Mr. Schussler's figure on that.

"XQ. 1097. No, his figure is \$3.00.

"A. Well, \$2.50 is the price which seemed to me a proper figure to use for making the excavation of the character described by him in his evidence.

"XQ. 1098. Would you think that would be any more expensive work than the cuts of the puddle-pit at Pilarcitos or San Andreas?

"A. Well, it might be.

"XQ. 1099. Did you think it was when you made your estimate?

"A. This cut, as I remember it, was very narrow and of a very considerable depth, and in which there was a good deal of hard material.

"XQ. 1100. How did you get the information as to the quality of the material?

"A. Either from his evidence or talking with Mr. Schussler in reference to it" (pp. 5148-9).

COST FIGURES ON CRYSTAL SPRINGS DAM.

Our intention being to supply cost figures wherever possible, we would have submitted, if possible, for comparison with Mr. Schussler's total estimate on the Crystal Springs Dam the cost price from the books. Un-

fortunately, this was prevented through the following causes:

First; the very careless manner in which the books were kept, payments for land being included in the Dam Account. In confirmation of this, the following quotation is given from Mr. Schussler's testimony (p. 2605):

"XQ. 4423. Have you been through the books yourself?

"A. I have looked occasionally when I wanted to find a specific item. For instance, when I thought that too much had been charged to the Crystal Springs main dam, I called on the secretary and he opened a number of old books for me, and I found then various items charged to the dam which should have been charged in the land account. I stated that in my testimony. Once in a while I look into detail things of that kind."

Second; Construction work on other portions of the Crystal Springs System were charged to the Dam Account, but from the record it would be impossible to trace what the total amount of such improper chargings would be. The only item to be found is on the Upper Crystal Springs Dam, Mr. Schussler testifying that \$31,500 was charged to the Main Dam which should have been debited to the Upper Dam (p. 2213). In this connection Mr. Schussler's testimony was in part as follows:

"There is no doubt in my mind that this figure of about \$31,500.00 expended in the construction of the upper dam, since Mr. Ames' account was closed in 1878, has, in all probability, been charged to the lower dam" (p. 2213).

Third; The missing Cash Books discussed on pages 92 and 93 of this brief. The following quotation from Mr. Wenzelburger (Exhibit No. 97, page 20) shows that details are not available for this reason on one-half of the entire charge to Dam Account:

“That one missing book, covering seventeen (17) months only, contains details of a little over one-half of the entire charge, of about two and a quarter millions dollars to the account, which charge covers the ten years from 1886 to 1895, inclusive. Twelve of these seventeen months are those of the year 1888 and cover the bulk of the missing details, namely, \$1,102,123.83, out of \$1,190,190.01.”

Consequently it is impossible to ascertain from the books exactly what improper charges were made and to arrive at the actual cost of the dam.

ROADS AT CRYSTAL SPRINGS.

For building eleven miles of roads, fences, etc., Mr. Adams gives a figure of \$25,000 (p. 5142), as against Mr. Schussler's estimate of \$35,000 (p. 938). Mr. Schussler based his price upon the average cost of building roads, according to his experience:

“XQ. 4929. Building the 11 miles of new county roads on the side hills: where did you get your data for the cost of those roads?

“A. That had to be done by order of the Supervisors, and it includes a great deal of other work. That was taken from the average cost of building that sort of a road. It is a good road, cut into the bank, and it has a fence on each side.

"XQ. 4930. How did you find out what such roads as that cost?

"A. Those roads generally run from \$2,500 to \$3,500 a mile.

"XQ. 4931. I did not ask you that. I asked you how did you find out the cost of that?

"A. I am telling you that the cost of that kind of a road runs generally in any part of the country from \$2,500 to \$3,500 a mile.

"XQ. 4932. How did you find that out?

"A. That is from our former experience in building roads. The character of the country is approximately similar, and this is an estimate."

"XQ. 4933. Have you built any roads yourself?

"A. Oh, yes. These are all built by the day, but there is no separate tally kept of their cost.

"XQ. 4934. It is a mere estimate then?

"A. Yes, it is an estimate, as close as a practical man can make it. If you would ask a contractor to go over there and give you a bid for building a road of a certain size and doing all the bridging in connection with it he would figure what he could afford to build it for and what the price would be.

"XQ. 4935. Would you not have to provide him with a profile of the country through which the road was to go?

"A. No, sir, he would do that himself.

"XQ. 4936. Did you have a profile for this particular road?

"A. No, sir, we simply knew the grade and the approximate size of the cutting and the character of the country. It costs an average of from 60 to 70 cents a running foot.

"XQ. 4937. Do those roads all cost the same, no matter how many creeks they have to cross?

"A. No, sir, they vary a great deal. That is the reason I did not state any particular price per mile. I made the total of the whole work.

"XQ. 4938. Do you know how much those roads actually cost?

"A. No, sir" (pp. 2757-8).

UPPER CRYSTAL SPRINGS DAM.

Mr. Grunsky, in his Report of February 9, 1903, to the Board of Public Works on Properties not in use, mentioned this dam as not a necessary feature of the works (p. 390). He also stated that it serves in a measure to improve the quality of the stored water through connection with the concrete dam by tunnel and pipe (p. 415), and further:

"The erection of the Crystal Springs Dam has made the Upper Dam unnecessary. It is serving as a roadway for the road leading from San Mateo to the coast, but it is not a necessary structure in connection with the water development" (p. 411).

Mr. Dockweiler included it in his list of "Properties which are seemingly in use but are not useful," as follows (p. 646):

"Crystal Springs upper dam cost.....\$230,827.63

This dam serves as a roadway.

A steel viaduct built in place thereof and

high enough to allow the raising of the

San Mateo dam, would cost..... 50,000.00

Hence proportional cost of dam not use-

ful 180,827.63"

This structure is included at above figure of \$180,827.63 in our list of Properties Not in Use (pages 109 and 142 of this brief).

The following extract from the Minutes of the Spring Valley Water Works, Book "D," under date of

June 19, 1890, shows that this structure has been abandoned as a dam and converted into a roadway and was intended to be subsequently used solely for that purpose:

"On motion of Mr. Bigelow, duly seconded, resolved, that an embankment of earth is to be constructed on top of the Upper Crystal Springs Dam, having a width at the base of from 180 to 200 feet, and a width on top of from 25 to 30 feet, the level of the top being at 305 feet above tide, or five feet above high-water mark of the large Crystal Springs reservoir. It is hereby distinctly understood and recorded that this embankment is intended *only* as a roadway and *not* as a dam to hold water. Therefore the clay puddle-pit of the old dam is not to be continued up through the new fill; and any good material that is found in the neighborhood, and that in the opinion of the S V W W engineer is fit to go into the embankment is to be used, and to be filled in and applied in such manner as engineer directs.

"Both slopes to receive a stone pitching to prevent wash. The west end of the dam to be left open at about 258 feet elevation either by a bridge or a culvert as our engineer directs when the present waste weir is located, so as to allow a free circulation between the waters of the upper and lower lakes from this level upwards.

"This proposed embankment to be filled during the summer of 1890 up to an elevation about equal to the height to which the top of the main Crystal Springs dam will be raised by this fall.

"One of the objects of entering the above work on the company's minutes with so much detail, is that the present, or future management of the company, shall never be tempted to use the proposed embankment as a reservoir bank (it not being built water tight), but to use it solely as a roadway as above stated" (p. 345).

SIX-MILE TUNNEL.

This tunnel, which is on the Crystal Springs Pipe Line, was constructed by Mr. Robert Higgins. Copy of contract between Spring Valley Water Works and Mr. Higgins, under date of October 9, 1883, is included in Mr. Higgins' testimony (pp. 17-22; Defendants' Exhibit No. 58).

Table No. 16 sets forth the estimates on the drifting, timbering and bricking of this tunnel, together with figures on cost supplied by Mr. Higgins, the contractor. It is noticeable that Mr. Schussler's estimate nearly doubles the cost.

Mr. Higgins' testimony on the brickwork for this tunnel was (p. 23) :

"MR. LONG—Q. 55. About how many brick did you lay in that tunnel?

"A. About 200 brick to the foot, making a total of about 428,400. The brick were delivered to me at Lake Merced coal yard, costing \$10 per thousand. The hauling cost \$2.50 per thousand.

"Q. 56. Mr. Schussler, on page 996 of his testimony, estimates that the brick cost, completely laid, \$58 per thousand, is that the fact?

"A. No, sir. My contract price was \$6 per lineal foot for brick laid in that tunnel. That means furnishing everything. We laid about 200 brick to the lineal foot, which makes the cost, per thousand brick, \$30.

"Q. 57. About how many brick did each mason lay a day?

"A. Each mason laid about 10 feet of brick work, with 200 brick to the foot, averaging about 2,000 brick a day."

TABLE No. 16.
Six Mile Tunnel.
Drifting and Timbering.

	Unit Price.	Estimate.	Page.
Mr. Schussler (drifting and timbering)	\$9.50 per ft.	\$22,414.00 (inclusive of 10%)	996
Mr. Adams (drifting and timbering)	9.00 per ft.	19,305.00	5170
Mr. Schuyler (drifting and timbering)	9.00 per ft.	19,305.00 (computed)	5570
Mr. Schuyler (Drifting)	4.85 per ft.	10,617.75 (computed)	19
Mr. Higgins (Timbering, 574 ft.)	.80 per ft.	459.20 (computed)	17-19

BRICKWORK.

	Mr. Schussler.	Page.	Mr. Adams.	Page.	Mr. Schuyler.	Page.	Mr. Higgins.	Page.
Total No. of brick.....	430,000	996	429,000	5170			428,400 (about)	23
Average No. laid per man per diem....	400	1000	900	5169	900	5571	2,000	23
Cost of brick per 1,000.....	\$ 11.00	997					\$ 10.00	23
Hauling, per 1,000.....	4.45	998					2.50	23
Loading and unloading, per 1,000.....	0.55	997					17.50	23
Cement, per 1,000.....	7.50	999						
Sand, per 1,000.....	2.85	1000						
Labor, per 1,000.....	31.70	1000-2						
Total cost, per 1,000.....	58.00	996	\$ 34.45	5170	\$34.50	5571	30.00	23
Total on brickwork.....	27,434.00*	996	14,779.00	5170			12,852.00†	

*Inclusive of 10%.

†Computed on Mr. Higgins' number of bricks.

Difference between Mr. Schussler's estimate and cost given by Mr. Higgins—

Drifting.....\$11,337.05
Brickwork.....14,582.00

\$25,919.05

LAKE MERCED DRAINAGE SYSTEM.

Table No. 17 gives the estimates of the several witnesses in detail on the three protective systems forming the Lake Merced Drainage System.

In the Water Rate Investigation of 1900-01, Mr. Schussler gave the cost of the South Lake Merced Drainage System (the North Lake Merced Drainage System having been built since) at \$176,914.11 (pp. 2251-3). In his testimony in this suit he gave this at \$264,300, being \$246,400 for the Colma Gulch Drainage System and \$17,900 for the Ocean View Drainage System. Mr. Schussler's testimony in this connection follows, and it will be noted that it contains admissions that his estimate included \$25,000, covering a portion of the Colma Gulch Concrete Dam and Masonry Canal, which has gone out of use:

"XQ. 3071. . . . The actual figures according to your testimony—and if I am not right you can correct me—are \$246,400 for the Colma Gulch, without the 5% for interest during construction, and \$17,919 for the Ocean View drainage system, without interest during construction, making a total of \$264,319, which you say in your testimony cost \$176,914?

"A. That also includes the 10% for incidentals, which I have not in the figure given at the time to the Supervisors.

"XQ. 3072. Why not? You gave the actual cost of it; is it possible that the actual cost did not include the incidentals?

"A. The engineering cost, the superintending cost, the wages of superintendents, the use of tools, all those things are not charged to those constructions.

"XQ. 3073. Those were not charged up?

"A. No, sir.

"XQ. 3074. Those were charged to operating expenses at the time?

"A. I do not know what they were charged to. What you were given at the time was what the secretary charged for actual new money paid out for new construction.

"XQ. 3075. I cannot help it, it is what you gave to the Supervisors when they were fixing rates.

"A. I stated there distinctly that those were the figures handed to me by the secretary.

"XQ. 3076. You said you thought it was inside of \$200,000?

"A. Yes, no doubt, from statements he made to me, because he keeps the books and I do not, as I have repeatedly stated.

"XQ. 3077. Did you not have an idea of your own, after you built these things?

"A. I did not have much time to figure on those things. I simply built the works so well that the water in the lake would be protected. I wish to call your attention to another thing that is included in this \$246,400, and that is the construction of the bulkhead of concrete in the upper canyon as well as the parabolical shaped brick conduit and concrete conduit from there down to dam No. 2, which I have deducted in my testimony, since I gave the testimony. I stated distinctly that the total expense of reconstructing this south Colma drainage system and exclusive of the Ocean View drainage system, but inclusive of the 10% for incidental and contingent expenses, superintending, engineering, etc., was \$246,400 to reconstruct that in 1903-04. That sum included a large amount of money somewhere in the neighborhood of \$25,000 more or less, which is shown in detail on pages 1230, 1231, of my testimony, which I deducted from the total.

"XQ. 3078. Deducted from the total of \$246,400?

"A. In my notes here I state 'of this work'—that is, of the upper work, the concrete dam and the brick tunnel—'there is in use about one-third of the U-shaped brick channel and the whole of the wooden chute, amounting to approximately \$25,000, which is not now in use.'

MR. GRUNSKY		MR. SCHUYLER	
Page of Testimony.		Total Estimates.	
Total Estimates— Report to Board of Public Works, Jan. 26, 1904.		Estimates	\$ 7,492.00
Page of Testimony.		Unit Price.	
Total Estimates— Report to Board of Public Works, Jan. 30, 1903.		Page of Testimony.	5579

Table No. 17

LAKE MERCED DRAINAGE SYSTEM

MR. SCHUSSLER						MR. ADAMS						MR. SCHUYLER						MR. GRUNSKY					
STRUCTURES.	Contents.	Unit Price.	Estimates (Detailed).	Estimates (Parts of Structure).	Total Estimates.	Page of Testimony.	Unit Price.	Estimates (Detailed).	Estimates (Parts of Structure).	Total Estimates.	Page of Testimony.	Unit Price.	Estimates	Total Estimates.	Page of Testimony.	Total Estimates—Report to Board of Public Works, Jan. 30, 1906.	Page of Testimony.	Total Estimates—Report to Board of Public Works, Jan. 26, 1904.	Page of Testimony.				
Colma Gulch Drainage System—																							
Concrete Dam—	750 cu. yds.							750.00			5255												
Excavation	22,740 cu. ft.		\$ 10,590.00			1229		5,344.00			5255												
Concrete			1,059.00			1229	\$.23½		\$ 6,094.00		5255		\$ 7,492.00		5679								
10% for contingencies.				\$ 11,600.00		1229					5255												
Masonry Channel and Wooden Chute—																							
Concrete	13,138 cu. ft.							3,087.00			5255												
Brickwork (per M.)	216,700 bricks		14,500.00			1229	29.70	6,436.00			5255												
Excavation	3,900 cu. yds.		1,500.00			1230	.15	585.00			5255												
Excavation	2,140 cu. yds.		1,500.00			1230	.25	535.00			5255												
Wooden Chute	512 ft.		1,750.00			1230		1,150.00			5255												
10% for contingencies.				19,000.00		1230			11,793.00		5255												
Dam No. 2.			6,790.00			1232																	
10% for contingencies.			679.00			1232																	
Road from Dam No. 2 to No. 1.			1,650.00		7,500.00	1232			6,108.00		5255												
10% for contingencies.			165.00			1232																	
Dam No. 1—				1,800.00		1232																	
Excavation and Fill	26,510 cu. yds.		7,950.00			1234																	
Cut—Making of	1,300 cu. yds.		5,200.00			1235																	
Puddle Clay	1,660 cu. yds.		3,100.00			1235																	
10% for contingencies.			1,625.00			1235																	
Drainage Canal—				17,900.00		1236			10,287.00		5256												
Excavation	{ 86,500 cu. yds. }		20,300.00			1237																	
Brickwork	{ 9,955 cu. yds. }		20,640.00			1237																	
10% for contingencies.	480,000 bricks		4,094.00			1237																	
Brickwork, Etc., for Forebays—				45,000.00		1237																	
Bricks	55,500		2,350.00			1238																	
Gates			690.00			1238																	
10% for contingencies.			308.00			1238																	
Lake Merced Tunnel—				\$ 3,400.00		1238-9																	
Drifting and Timbering.	3,050 lineal ft.		55,500.00			1240	18.20	55,500.00			5256												
Brickwork (per M.)	1,244,000 bricks		63,400.00			1240	29.70	36,947.00			5256												
10% for contingencies.			11,890.00			1240						\$31.20	55,500.00		5579			\$ 225,347.00	170				
Cast Iron Drain Pipes	6,170 ft.		8,140.00		130,000.00	1240			92,477.00		5256							\$ 225,347.00	191				
10% for contingencies.			814.00			1241	.80	4,936.00			5256												
Gates			100.00			1242							6,170.00		5579								
Watchman's House and Outbuilding.			1,100.00		9,000.00	1242																	
10% for contingencies.			110.00			1242																	
Total: Colma Gulch Drainage System.				1,200.00		1242																	
Ocean View Gulch Drainage System				\$ 246,400.00		1243			\$ 164,574.00		5256												
Flume, Lumber	118,800 ft.		15,400.00			1253																	
Dam and Culvert			890.00			1253																	
10% for contingencies.			1,629.00			1253																	
Total: Ocean View Gulch Drainage System.				17,900.00		1253																	
Dam Between North and South Lakes—																							
Fill and Rip Rap Lining.	3,370 cu. yds.		1,120.00			1254																	
Excavation			660.00			1255																	
44-inch Wrought Iron Pipe	147 ft.		1,510.00			1255-6																	
44-inch Gate			1,400.00			1256																	
Brickwork	65,700 bricks		3,080.00			1256																	
Retilling Ditch			80.00			1256																	
10% for contingencies.			785.00			1256																	
Total: Dam Between North and South Lakes				8,600.00		1256																	
Dam and Outlet from North Lake—																							
Excavation for Dam	4,400 cu. yds.		1,750.00			1261																	
Concrete Forebay	1,286 cu. ft.		800.00			1261																	
Tunnel	600 ft.		4,200.00			1261																	
44-inch Wrought Iron Pipe	1,200 ft.		12,310.00			1261																	
10% for contingencies.			1,828.00			1261																	
Total: Dam and Outlet from North Lake.				21,200.00		1261																	
Ingleside Gulch Drainage System—																							
Brick Flush Tank			100.00			1257																	
Iron Stone Pipe	9,200 ft.		2,800.00			1257																	
Cast Iron Pipe	730 ft.		1,310.00			1258																	
6-inch Cast Iron Pipe	1,902 ft.		2,280.00			1258																	
8-inch Iron Stone Pipe	460 ft.		300.00			1258																	
4-inch Cast Iron Pipe	140 ft.		678.00			1259																	
10% for contingencies.						1259																	
Total: Ingleside Gulch Drainage System.				7,400.00		1259																	
North Lake Merced Drainage System—																							
Main Diverting Dam			560.00			1259																	
Ditches	3,228 cu. yds.		960.00			1259																	
30-inch Wrought Iron Pipe	2,637 ft.		12,850.00			1259-60																	
Trestles			4,200.00			1260																	
Concrete Inlet, Etc.	784 cu. ft.		310.00			1260																	
30-inch Pipe	50 ft.		250.00			1260																	
Keeper's Cottage and Barn			3,800.00			1260																	
10% for contingencies.			2,290.00			1260																	
Total: North Lake Merced Drainage System.				25,200.00		1260																	
5% Interest During Construction				16,335.00		1262																	
10% for contingencies.																							
Total: Lake Merced Drainage System.				\$ 343,000.00		1262			\$ 234,738.00		4738		\$ 241,653.00		5580		24,288.00	170	24,288.00	191			
																	267,177.00	170	267,177.00	191			

TOTAL: LAKE MERCED DRAINAGE SYSTEM.

Mr. Dockweller.....\$227,090.00 (page 647).
 Mr. Fitzgerald.....340,330.32 (pages 433 and 456) Includes land items.

"XQ. 3079. Do you deduct that from the \$246,400?

"A. I do not know. I simply stated that it is not in use.

"XQ. 3080. You say it should be deducted. If you will refer to page 1262 of the testimony you will see that you did not deduct it?

"A. I testified on pages 1230, 1231 that that was not in use, and you are at liberty to deduct it because I state it is not in use.

"XQ. 3081. Let us deduct that now from your final total?

"A. I made that statement voluntarily.

"XQ. 3082. The 10% on that would also be deducted, would it not?

"A. No, that 10% is included in that.

"XQ. 3083. You added 10% afterwards?

"A. That is included in it.

"XQ. 3084. You added 5% for interest during construction?

"A. Yes, sir.

"XQ. 3085. So that should be deducted?

"A. Yes, sir.

"XQ. 3086. That makes it \$25,000 and also 5% of that?

"A. Yes, sir; that would be fair because I stated to you it was not in use.

"XQ. 3087. If you will examine page 1262 of the testimony you will find in the recapitulation that you gave the whole amount.

"A. I distinctly stated before I made up the total cost—I was asked to find out, as near as practicable, what the cost would be, under the circumstances of wages, materials, etc., in 1903-04, and I, therefore, made out an estimate of the cost of the entire works. During the time, or even prior to giving the detailed testimony, I stated that a portion of that work amounting to about \$25,000, which included 10%, was not in use; I stated that distinctly, so that if his Honor, the Judge, should conclude that, it not being in use, it should properly be deducted, that is his jurisdiction; and I especially call attention to that so that if he wishes to decide on things only in use, irrespective of other things we built, that is the figure he can deduct from it. He is the Judge. I have distinctly stated that in detail.

"XQ. 3088. You, however, did not deduct it yourself?

"A. I told you that distinctly.

"MR. KELLOGG—No, he did not, because I maintain, and I have told Mr. Schussler I maintained, that all these things are entitled to be considered in rendering a judgment in this action.

"MR. PARTRIDGE—Is that Mr. Schussler's answer?

"MR. KELLOGG—I am telling you what I told him. He followed my instructions in that way.

"MR. PARTRIDGE—XQ. 3089. That item is included in your summing up of that particular work. In your final summing up you expressly deducted a large sum of money for properties not in use, did you not?

"A. Yes, sir.

"XQ. 3090. How do you reconcile that?

"A. You remember distinctly, Mr. Partridge, that I came voluntarily to Mr. Kellogg several months ago and told him that in revising my figures on the foundation of the Pilarcitos, San Andreas and Crystal Springs dams I thought a reduction ought to be made from my estimates, and I asked him, 'shall I bring that out now,' and he said, 'no, wait until the proper time comes, just so long as you bring it out.'

"XQ. 3091. What has that got to do with this question?

"A. I do not want to be blamed by anybody.

"XQ. 3092. I am not blaming you; it is not a question of blame. This is the fact: you say you left the \$25,000 in your estimate because Mr. Kellogg advised you——

"A. (Interrupting). That the Judge was the proper party to decide it.

"XQ. 3093. Will you let me finish my question—that the properties not in use should be included. Is that true?

"A. He did not state that. Mr. Kellogg stated to me that the properties not in use should be mentioned in the estimate, but that I should call attention to the fact that they were not in use.

"MR. KELLOGG—I want to say right here in justification of myself in that regard that at the conclusion of Mr. Schussler's estimate I had him deduct, so it would make it easier to mathematically calculate what properties were in use and

what were not, and, at my instance, at the close of his testimony, he deducted from his estimate something like four million five hundred thousand dollars for property not in use.

"MR. PARTRIDGE—But he did not deduct \$25,000 for this portion of the protective system of Lake Merced that is not in use.

"THE WITNESS—But I called special attention to it, which you forgot to state.

"MR. PARTRIDGE—XQ. 3094. But you included it in your final summing up?

"A. Because it cost that money and it will cost it to reconstruct it, and I called special attention to the fact that a portion of that work is not in use, leaving it to the Judge, either to leave it in or to deduct it" (pp. 2253-8).

And:

"Now, will you please continue that inquiry in connection with the Lake Merced drainage system? I am not through with that yet. You made a statement that the estimate at that time was in the neighborhood of \$176,000. That probably was the figure that Mr. Ames had charged up to it and that was the only source of information I had at the time.

"XQ. 3096. What source of information have you got since?

"A. I have thoroughly inventoried the entire works and thoroughly estimated it at the rate of labor and materials at the present time, that is, for 1903-04.

"XQ. 3097. You built it anew on paper; that is what you have done, have you not?

"A. That is the only way you can get at as to what a thing will cost nowadays—by making an inventory of the entire thing and then reconstructing it" (p. 2258).

According to Mr. Schussler's own admissions an amount of \$26,250. (\$25,000 and 5 per cent for interest during construction) should be deducted from his

total valuation. In his direct testimony it is clearly shown that no deduction was made (pp. 1230-1). Mr. Schussler's deduction of \$4,500,000 for properties not in use covered specific items for certain lands not in use, and did not include anything for structural properties gone out of use (pp. 1585-6). In our list of Properties Not in Use we have included the abandoned portion of this structure at \$25,000 (see pages 110 and 152 of this brief).

COLMA GULCH DRAINAGE SYSTEM.

From Table No. 17 on the Lake Merced Drainage System, it will be noted that Mr. Schussler exceeds Mr. Adams' estimate of \$164,574 (p. 5256) for the Colma Gulch Drainage System by \$81,826, or about 50 per cent.

Mr. Schussler does not give unit prices, and in many cases lumps items together, but it is at once evident that on the concrete dam and the bricking of Lake Merced Tunnel, Mr. Schussler's figures are nearly double those of Mr. Adams.



Page 164 of Page 184 of
Testimony. | Testimony.

PILARCITOS SYSTEM.

The detail estimates of the several witnesses on the various structures included in this system are shown on Table No. 18.

PILARCITOS DAM.

Table No. 19 gives the estimates of Messrs. Schussler, Adams and Schuyler on the excavation, puddle pit, puddle fill and embankment work at the Pilarcitos Dam. While Mr. Schussler divides this portion of the construction of the dam up into four sections, giving a different unit for each, it is shown by the following testimony of Mr. Emery, who had the contract to build the dam, that only one price was stated in said contract:

"Q. 17. You had a contract to build the Pilarcitos dam?

"A. Yes. The dam was commenced when I took the contract; the foundation was dug out, and prepared for the clay to be put in. The puddle-pit was dug down some 20 feet below the surface, and it was blocked up so it would not cave. I commenced it then and built it within about 10 feet of the top.

"Q. 18. Did you have a contract with the Spring Valley Water Company at that time?

"A. Yes, sir.

"Q. 19. What were you to be paid for doing that work?

"MR. KELLOGG. The same objection will be deemed to be made to all this testimony, Mr. Long.

"MR. LONG. Certainly.

TABLE No. 19.
Pilarcitos Dam; Excavation, Puddle and Embankment.

MR. SCHUSSLER				MR. ADAMS				MR. SCHUYLER				
Items	Quantities	Unit Price	Estimate Inclusive of 10%	Page	Unit Price	Estimate	Page	Remarks on Mr. Adams.	Unit Price	Estimate	Page	Remarks
Removal of top soil	40,900 cu. yds.	\$.40	\$17,764	725 2036	\$.38	\$15,542	5034	Gives top soil re- moved as 56,900 cu. yds., and deducts Mr. Schussler's error of 16,000 cu. yds., making difference of 50,900 cu. yds., 10- 000 cu. yds. at 38 cents has therefore been deducted from his estimate.	.38	\$16,682	5514	Uses quantity of 43,900 cu. yds.
Puddle Pit, Cut of	10,100 cu. yds.	2.50	27,775	740	2.15	21,715	5034		2.15	21,715	5514	
Puddle Pit, Fill of	34,200 cu. yds.	2.00	75,240	745	1.40	47,880	5034		1.38	47,196	5514	
Main Embankment	326,000 cu. yds.	.70	250,612	739 2036	.65	211,900	5034		.68	221,680	5514	
			\$371,391			\$297,037				\$307,273		

Difference between Mr. Schussler and average of Messrs. Adams and Schuyler=\$69,236.

"A. Thirty-six and three-quarter cents per cubic yard, I believe.

"Q. 20. How was that measured?

"A. Mr. Schussler measured it, or Mr. Brown; Mr. Calvin Brown was the manager there at that time, or the engineer.

"Q. 21. How was that measured?

"A. It was measured by the work that was put in, so much per cubic yard. I did not measure it. I took their measurement of it.

"Q. 22. Do you know what method they used in the measuring?

"A. They measured the contents, and then computed it.

"Q. 23. Was it measured in the pit or in the dam?

"A. It was measured on the dam" (p. 33).

And:

"Q. 41. You received for doing the work $36\frac{3}{4}$ cents a cubic yard, which was measured in the dam by the engineers?

"A. Yes, to the best of my recollection I think that was the contract, I have not the contract now. I destroyed all the papers.

"Q. 48. Mr. Schussler testified on his direct examination that the puddle core was worth \$2.50 per yard to put in, and the ordinary dam was worth 70 cents per yard. Did you receive any such figures?

"A. No, sir. All I received was all lumped in. I received just the same for the puddle pit as for the main part of the dam.

"Q. 49. And that was $36\frac{3}{4}$ cents?

"A. Yes, sir. Then I found, in going into it, they cut steps up the hill to connect with the broken rock there, and they wanted me to dig them out and put clay in there; I commenced at it, and they went away down below the water, and we kept a steam pump going day and night; we took out a large quantity of it and filled the space with blue clay. I got paid for doing all that work just the same as I did for the main dam, $36\frac{3}{4}$ cents per cubic yard" (pp. 37-8).

In justice to complainant it must be admitted that Mr. Schussler testified that Mr. Emery took this contract at so low a figure that he was unable to complete the work (p. 2092). From testimony quoted at page 333 of this brief, however, it seems that Mr. Emery was engaged eleven months on the work (p. 39).

The following extracts from Book "B" of the Minutes, under dates of February 23, and February 27, 1865, respectively, are offered in confirmation of Mr. Emery's testimony that the contract price was $36\frac{3}{4}$ cents per cubic yard (p. 2057).

"On motion of Mr. Davis, seconded by Mr. Kittle, resolved, the contract for building the main dam on the Pilarcitos Creek be and the same is hereby awarded to Mr. J. S. Emery on his bid of this date, at $36\frac{3}{4}$ cents per cubic yard, satisfactory security to be given by him for the faithful performance of the work. Adopted unanimously" (p. 166).

"On motion, duly seconded, resolved, that the President be authorized to cause to be executed as the act and deed of the Spring Valley Water Works a contract, under the advice of the Attorney and Superintendent of the Spring Valley Water Works, in such terms as to carry into effect the resolution of February 22nd, 1865, awarding to J. S. Emery the contract for building the main dam on the Pilarcitos Creek. Adopted unanimously" (p. 172).

Mr. Schussler stated that in the portion of the excavation work done with plows and scrapers, the cost came out at $33\frac{1}{4}$ cents per cubic yard. Where the ground was confined, and there was no chance to get at it with plows and scrapers, he fixed a unit price of $62\frac{1}{2}$ cents a cubic yard. Mr. Schussler took the average of these two units and rounded the figure off at 40 cents (pp. 726-728).

In connection with Mr. Schussler's statement as to use of plows, Mr. Emery testified:

"Q. 59. Did you have any plows at work there?

"A. No, sir.

"Q. 60. It was all hand labor?

"A. Yes, sir, all hand labor. It was a rough country, all hillside, and where we could find a little valley where there was any clay in it of any depth, we worked it out. It was very difficult to get clay there.

"Q. 61. How was it brought in?

"A. I hauled it in with carts.

"Q. 62. That was the method of transportation, bringing it in with carts?

"A. Yes, sir.

"Q. 63. Did you use horses or oxen?

"A. Horses. I had probably fifty horses and carts at work.

"Q. 64. You had no plows?

"A. No.

"Q. 65. No machinery of any sort?

"A. You could not plow it; it was all hillside" (p. 39).

LABOR EMPLOYED ON CONSTRUCTION OF PILARCITOS DAM MAINLY CHINESE.

Mr. Schussler based his estimate for the cost of the labor used in the construction of the Pilarcitos Dam on wages paid at the present time for first class men (pp. 2076-81). The testimony of Mr. Emery, quoted below, shows that the major portion of the labor employed was Chinese:

"Q. 24. What sort of labor did you use upon that work?

"A. First I had white men, and they struck for some

cause or other—I have forgotten what—and then I hired Chinamen. A short time after I commenced I took Chinamen and they did the shoveling and picking and one thing and another. I had some white men with me but not many.

“Q. 25. How long were the white men with you before they struck?

“A. I do not remember; not a great while. It was not up very high.

“Q. 26. Not very long?

“A. No.

“Q. 27. The balance of the time you used the Chinamen?

“A. Yes, mostly Chinamen. I had a few superintendents who were with me, and some others, but mostly Chinamen.

“Q. 28. The foremen and superintendents were white men?

“A. Yes, sir.

“Q. 29. About how many Chinamen did you employ on that work?

“A. I think from 200 to 300.

“Q. 30. What wages did you pay the men?

“A. I do not remember; I think I paid them one dollar a day and they furnished their own provisions, but I have forgotten.

“Q. 31. You think it was about one dollar a day and they boarded themselves?

“A. To the best of my recollection. I would not want to say positively because I have no data to go by now, only from memory.

“Q. 32. Was it over a dollar and a quarter a day?

“A. No, I do not think it was.

“Q. 33. What sort of work did the Chinamen do?

“A. They filled the carts and they broke down the banks. I believe some of them worked on the dam, spreading the dirt. I do not know.

“Q. 34. Was their work satisfactory?

“A. Oh, yes, we did not have any complaint” (pp. 34-35).

And:

"Q. 42. The labor used by you on that work was, for the greater part of the time, Chinese labor?"

"A. Yes, sir.

"Q. 43. And, as your recollection serves you, you paid them one dollar a day and they found themselves?"

"A. I think that was the price, but I would not be certain.

"Q. 44. And they worked 10 hours a day?"

"A. Yes, sir.

"Q. 45. And performed their work satisfactorily?"

"A. Yes, sir.

"Q. 46. The men were not selected men, were they? As I understand it, they were brought to you by the representatives of the four companies?"

"A. I just had so many men.

"Q. 47. They were not selected for any particular skill, were they?"

"A. No. They had not much skill, only to shovel dirt and pick dirt" (p. 37).

And again:

"Q. 54. How long were you engaged on that work?"

"A. About eleven months, I think.

"Q. 55. How much of that time did you have white men?"

"A. I do not remember.

"Q. 56. Was it one-third of the time you were engaged on the works?"

"A. No, I do not think it was one-third of the time. I had Chinamen most of the time.

"Q. 57. Can you not approximate? Was it one month out of the eleven?"

"A. I can not tell.

"Q. 58. You do not think it was one-third of the time?"

"A. I do not think so. I think more than two-thirds of the time I had Chinamen. I have nothing to go by but memory" (p. 39).

The foregoing testimony of Mr. Emery shows that the workmen had no special skill, "only to shovel dirt and pick dirt," and contrasts very strongly with Mr. Schussler's repeated statements as to the "extraordinary good men" employed by the company.

COMPARISONS BETWEEN THE ESTIMATES OF MESSRS.
SCHUSSLER, ADAMS AND SCHUYLER ON PILARCITOS
DAM.

Mr. Schuyler, whose estimate on the Pilarcitos Dam was \$78,680.00 lower than Mr. Schussler's (see Table No. 18) stated that he based it on a rate of wage of from \$1.75 to \$2.00 a day, which he presumed was the rate prevailing at the date of the building of the dam (p. 5510). As Mr. Schuyler's estimate was intended to be based on original cost, it is evident that if he had had knowledge of the true circumstances of the case, his figure would have been considerably less, and this is proved by the following extract from his cross-examination:

"XQ. 231. You do not know whether Chinese labor was used on that, do you?

"A. No, sir.

"XQ. 232. If it is an admitted fact that it was built largely by Chinese labor, and the price of Chinese labor was \$1.00 a day, then the cost of the dam would be less than your estimate of it, would it not?

"A. Very likely, yes, sir" (p. 5511).

Mr. Schuyler stated at page 5511 of his testimony that he believed the rate of wage paid Chinamen at the date of construction of the dam was about \$1.00 a day.

Mr. Adams, who gave a total for the Pilarcitos Dam of \$84,938.00 lower than Mr. Schussler, differs from Mr. Schuyler in that he considers the rate of wage paid at the time of the construction of the dam was higher than that paid at the present time, and that consequently the original cost would exceed the cost of reduplication. His testimony is here quoted:

"XQ. 691. The principal item on the construction of earthen dams, such as the Pilarcitos and San Andreas, is labor, is it not?

"A. Yes, that is the chief item.

"XQ. 692. We have seen, have we not, that the rate of wages since 1899 for common labor is greater than it was from 1864 to 1868, when these two dams were built?

"A. You are comparing white labor with Chinese labor. The fact that Chinese were employed on that work and were paid somewhat less we will say than \$2.00 per day does not warrant the conclusion that, therefore, a certain given yardage in the dam cost less with that labor than it would cost with white labor at \$2.00. My general impression is that labor, on the whole, at that time was higher than it is now. As a matter of common knowledge, we all know that in early times the ruling rates of wages for labor were very high.

"XQ. 693. You think, then, that the rate of wages paid at the time these works were constructed was greater than it is say last year and this year?

"A. Yes, I think very likely that it was. The fact of Chinese being employed at a cost, if my memory is right, of about \$1.90 a day, including board, would certainly indicate that white labor was much in excess of \$2.00.

"XQ. 694. If that is true, then the actual cost of the Pilarcitos and San Andreas earth dams must have been

greater or should be greater than an estimate of that cost based upon the rate of wages which prevails to-day; is not that so?

"A. Yes, if wages were correspondingly higher. Everything else being equal, of course that would be the case" (pp. 5054-5).

And:

"XQ. 697. Let us take a piece of work, an earthen dam, a clay dam, which is actually built; we have before us a complete schedule of the various prices which entered into it and, as a matter of fact, we have the actual cost of that dam. The rate of wages and other things which prevailed at the time that this imaginary dam of ours is built changes and becomes very much less. Some one comes along, with full knowledge of the amount that entered into that dam, and makes an estimate under a decreased rate of wage, and we find that that estimate is, instead of being less, as we would expect, very much greater; then, what is the conclusion?

"A. It would indicate, if his schedule of quantities is correct, that the quantity of work performed per man or per team had been erroneously judged.

"XQ. 698. In other words, the conclusion is inevitable that the person making the estimate is mistaken?

"A. Yes, or at least, there was a discrepancy between his judgment and the actual facts as they were worked out in the structure.

"XQ. 699. The conclusion is inevitable that, if we have the actual cost of the structure originally, the investigator must be wrong in some particular?

"A. Yes, not in possession of full knowledge perhaps, or full information.

"XQ. 700. You know, do you not, that Mr. Schussler's estimate of the cost of constructing the Pilarcitos and San Andreas dams in the years 1903-4, is very much in excess of the actual cost as given by the company's books?

"A. That is my recollection of the evidence" (pp. 5055-6).

The following further testimony given by Mr. Adams, shows the basis of his estimate, and that he accepted Mr. Schussler's figures on quantities:

"XQ. 685. Your detail costs would not represent the actual cost of this dam, would they?

"A. That I can not say. The purpose of this estimate was to determine the probable cost of these various structures, in the absence of any exact information as to what they had cost. Had I had exact information as to what they had cost, I should even then have prepared this estimate as a check upon those statements of cost. They are estimates, and nothing more, and their purpose is to determine the probable cost of those structures.

"XQ. 686. They are estimates made by taking, in the first place, Mr. Schussler's statements of the amount of work that was done?

"A. Yes.

"XQ. 687. In the second place, by taking Mr. Schussler's statements of the way in which the work was done?

"A. Yes.

"XQ. 688. In the third place, by taking the rate of wages and the materials which have been the average rate of wages and materials since 1899?

"A. Yes.

"XQ. 689. If it is true that the rate of wages at the time these works were actually built was less than has prevailed since 1899, then it is true, is it not, that the actual cost of the works must be less than your actual estimate of them?

"A. Yes, if other things remained the same.

"XQ. 690. Do you know whether they did or not?

"A. No, I do not" (p. 5053).

And:

"XQ. 608. Did you make any separate investigation to determine whether or not the quantities given by Mr. Schussler were correct?

"A. No. I accepted his schedules 'as given in his evidence as the correct quantities entering into the work" (p. 5037).

Testimony by Mr. Schuyler, given below, shows that he also accepted Mr. Schussler's quantities without making any independent computation:

"XQ. 255. Will you give the details of 38 cents a cubic yard for the top soil?

"A. I do not know that I made up any details.

"XQ. 256. How did you get at the figure?

"A. From my general judgment of what that probably cost at that time.

"XQ. 257. All through the construction of this dam you took the quantities from Mr. Schussler's testimony, did you?

"A. Yes, sir.

"XQ. 258. You made no estimate of the size of that dam yourself?

"A. No, sir, I did not attempt to check the computation as to the contents of the dam.

"XQ. 259. Have you any details for your figure of 68 cents for the clay in the main embankment?

"A. No, sir, I do not think I have.

"XQ. 260. Was that just based on your judgment of the cost to do that work in the way it was done?

"A. Yes, sir, based on my general experience.

"XQ. 261. Did you not have any means of arriving at that particular figure of 68 cents rather than 69 cents or 67 cents, or some other figure?

"A. I do not recall the mental process through which I arrived at that particular figure, but that I put down as my judgment of the probable cost.

"XQ. 262. Both Mr. Adams and Mr. Schussler have given for all of these things, elaborate details of the method by which they arrived at their particular estimates of these detailed costs; you have done nothing of that kind, have you?

"A. In some cases, yes, I have made up some; I think I have them somewhere in my notes.

"XQ. 263. But you did not on this main embankment?

"A. I do not recall that I did.

"XQ. 264. Did you on the puddle-pit excavation, at \$2.15?

"A. I think that in that case and a number of others, perhaps in a majority of the details of construction, I have collaborated with Mr. Adams in the preparation of the details of what would be the probable cost, and I have a memorandum in my notes of what that was, but I have not it here.

"XQ. 265. Your details on that would be the same as Mr. Adams', is that what you mean?

"A. I think I altered Mr. Adams' figures in some respects to comport with my judgment but I think, as a general thing, we nearly agreed in most cases, and in some instances we arrived at the same result.

"XQ. 266. But when you disagree in the sum of \$1,800,000 on the probable cost of these structural works, where does that leave us? Can you not give us any more details than that? Have you any details at all on this Pilarcitos dam, as to your unit figure?

"A. Not with me, no.

"XQ. 267. Have you some at home?

"A. I think I have. I will try and look them up before I come again" (pp. 5515-7).

In spite of the fact that Messrs. Adams and Schuyler adopted Mr. Schussler's quantities, which it will be shown later were based on mere guesswork computations, the average of their estimates is \$81,809.00 lower than Mr. Schussler's.

Mr. Adams admitted in the following that estimates cannot be exact:

"XQ. 738. Mr. Adams, I note that in the excavation for the puddle-pit you put the amount of work that a man would do at 4 cubic yards a day, and Mr. Schussler at 3 cubic yards. How do you account for that difference?

"A. I presume it is just a difference in opinion.

"XQ. 739. Mr. Schussler's estimate is on the basis of first-class picked men, is it not?

"A. I think so; that is my recollection of his evidence.

"XQ. 740. Has your experience been that in an excavation of that kind a good man would do 3 or 4 cubic yards?

"A. It is a matter of judgment. If a man were building the same puddle-pit twice he would not find he would move the same amount of yardage per man in the two cases. There are certain elements always in such work which are incapable of forecast and exactness.

"XQ. 741. In a large amount of work, however, on the same kind of work, that is, the same character of earth and the same degree of wetness, would it not be true that the average would be pretty nearly the same?

"A. No, not necessarily. For instance, the element of management in work will often make a difference of half in its cost.

"XQ. 742. Your estimate pre-supposes better management than Mr. Schussler's estimate; is that the idea?

"A. Oh, no, not necessarily. My estimate is simply based on my own judgment what, under average conditions such as are described there would be the proper amount that a man would move. An estimate deals with nothing more than a high probability. It makes no claim to being exact; in the nature of things it cannot be" (pp. 5066-7).

COMPARISON OF UNITS GIVEN BY MR. HERING ON STORMVILLE RESERVOIR, NEW YORK, WITH MR. SCHUSSLER'S UNITS ON PILARCITOS DAM.

In connection with Mr. Schussler's units of 40 cents per cubic yard for removal of top soil and \$2.50 per cubic yard for cut of puddle pit (see Table No. 19), Mr. Hering on cross-examination testified:

"XQ. 2428. Referring again to your and Mr. Freeman's and Mr. Burr's report regarding the improved water supply in New York, I will refer you to your estimate on

the Stormville reservoir; you place the stripping of the dam base at 25 cents a cubic yard. Do you consider that that was a fair estimate of the cost of that at the time this report was made?

"A. I do.

"XQ. 2429. And the excavation for the trench of the core wall at one dollar a cubic yard. Do you consider that a fair estimate?

"A. Yes, sir.

"XQ. 2430. When was this report made—upon the date given in the front, November 30, 1903?

"A. Yes, sir.

"XQ. 2431. Is there any reason why the cutting of a trench in earth should cost one dollar in New York and two dollars and a half in California?

"A. There may be a reason for it.

"XQ. 2432. What is it?

"A. I say there may be.

"XQ. 2433. Do you know whether there is or not?

"A. I presume the digging of the trench which was necessary here was more difficult, more expensive.

"XQ. 2434. You accepted Mr. Schussler's figure on it, \$2.50, in making your estimate, did you not?

"A. I accepted most of his figures. I examined them and when I had no criticism to make I accepted them. I understood that, in most cases at the time, the time estimate was the time actually spent.

"XQ. 2435. Was that the case in the cut of the Pilarcitos and San Andreas dams?

"A. That was generally the case.

"XQ. 2436. You are not aware then, that Mr. Schussler did not have any data on either the Pilarcitos or San Andreas dams concerning the time actually spent?

"A. He did not have the data for a great many cases, and then there was an estimate made.

"XQ. 2437. Did you, at the time you made your estimate agreeing with his, know anything about the actual character of the cut in the Pilarcitos dam?

"A. How could I have known?

"XQ. 2438. Then you did not?

"A. Of course not" (pp. 3872-3).

COMPARISON WITH PREVIOUS ESTIMATE BY MR. SCHUSS-
LER ON PILARCITOS DAM.

Testifying in the Water Rate Investigation of 1900-01, Mr. Schussler gave an estimate for the Pilarcitos Dam of \$340,000.00 (p. 2470), being \$76,600.00 less than his estimate of \$416,600.00 in this suit (pp. 806, 2182). In explanation of this difference Mr. Schussler testified as follows, which is at variance with Mr. Adams' statement that original cost would be greater than reduplication cost:

"XQ. 2617. There is a difference there of about 33 1-3% between that amount and your estimate, that is, it is about one-third less?

"A. That is very likely so because materials have gone up since that time, except cement, and labor has gone up considerably. At that time we used to work the men 10 hours a day, and they got \$2.00 a day and sometimes less, while now they work 8 hours a day and they get \$2.50. So that alone—the labor account—which is the large item of this sort of work, like dam building, has gone up over 50% per hour, the cost of work per hour.

"XQ. 2618. What materials that were used in that dam have increased since the time it was built?

"A. The materials have not increased but the labor has increased; the cost of teaming and, I believe, the cost of feed and the cost of labor."

(Part of A. to XQ. 2621): "I think the price of brick has gone down, and I think cement has gone down.

"XQ. 2622. Brick and cement are cheaper?

"A. Yes, I think so.

"XQ. 2623. How much?

"A. That I do not know" (pp. 2130-1).

COST FIGURES ON PILARCITOS DAM.

The following quotation from Mr. Dockweiler's testimony shows that the complainant was in possession of full data on the cost of this dam:

"I have investigated the cost of the Pilarcitos dam, and am enabled from my investigation—this having been made from the cash books of the company and such vouchers as I examined—to state that every item of expenditure can be classified and arranged so that the original cost of the structure can be determined" (p. 510).

The above statement by Mr. Dockweiler is borne out by an inspection of Mr. Wenzelburger's Exhibit No. 101 on the account books of the company.

Mr. Reynolds, in Complainant's Exhibit No. 109, which covers the Construction Account up to 1865, prior to which time the Pilarcitos Dam had been in course of construction, lumped the Pilarcitos Dam, Flume and Pipe together in one item, and although the cost of the dam could be obtained from his exhibits, it would be a matter of computation.

As Mr. Wenzelburger shows the cost of the Pilarcitos System in more detail, we give his figures below, taken from Defendants' Exhibit No. 101:

Main Dam (p. 230)	\$300,592.00
Pilarcitos Main Large Dam (p. 226) . .	9,446.68
Pilarcitos Dam (p. 226)	25,710.68
	<hr/>
	\$335,749.36

This agrees very closely with the figure of \$335,749.46 given in an exhibit filed by the company in the Water Rate Investigation of 1900-01 (pp. 2129-30).

Mr. Schussler made a separate estimate on the Pilarcitos Gatehouse. No figures appear on this structure in the exhibits of Messrs. Reynolds and Wenzelburger, and the cost is undoubtedly included in the figure of \$335,749.36 for the dam above given. The comparison between Mr. Schussler's estimates and cost would therefore be:

Pilarcitos Dam and Waste Weir (pp. 806,	
2182)	\$416,600.00
Pilarcitos Gatehouse (p. 806)	24,800.00
	<hr/>
	\$441,400.00
Cost as given above	335,749.36
	<hr/>
Excess of Mr. Schussler's estimates over	
cost	\$105,650.64

MR. SCHUSSLER'S ESTIMATE ON PILARCITOS DAM BASED ON MEMORY AND COMPUTATIONS FROM OLD SURVEYS.

As shown in the preceding paragraph Mr. Schussler had cost records available in the books, on which he might have based his estimates. In accordance with his usual custom, however, he avoided the use of cost figures as a basis, and had recourse to old surveys of the valley from which the contents of the dam were computed. This kind of data, unreliable as it is bound

to be, is entirely unconvincing, especially as it is shown that in many cases he relied upon a recollection of work done some forty years previously, and that he afterwards admitted considerable errors in his calculations. Mr. Schussler's testimony as to the basis of his estimates is as follows:

"The engineer's department kept an approximate general record of the relative quantities and proportion of the various parts of the work performed, thus enabling this department to form estimates of the work performed in the past and also to be useful in estimating future work. In regard to the head works, such as Pilarcitos, San Andreas and Upper Crystal Springs dams, only ideal cross and longitudinal sections were found and they were then used in the computation of the quantities in attempts made by us heretofore to approximately ascertain the respective quantities of various classes of work needed in the construction of the dam.

"When in connection with the present suits of the Spring Valley Water Company vs. The City of San Francisco, it became necessary and essential to arrive, as accurately as possible to the cubical contents of the dam and also to proportion, as nearly as practicable, the various features in the construction and classes of work, I personally made accurate surveys, including a thorough system of soundings, of these three dams, and also caused all of the old records in our office to be thoroughly searched, with the result that we discovered some additional plans and notes relative to the foundations and sections of the dams. From these data, coupled with accurate surveys and soundings of the dams, I reconstructed the plans and we figured the cubical contents which, although varying somewhat in the relative proportions between excavations, puddling and embankments heretofore assumed, gave the most accurate result that could be obtained under the circumstances, and, in the following estimate, I have used these results as a basis. The totals of these quantities do not differ materially from those heretofore used" (pp. 707-8).

Again:

"As I stated in my direct testimony, I tried to come as near as practicable to the respective cubical contents of the three clay dams, namely, the Pilarcitos, the San Andreas and the Upper Crystal Springs. As I then stated, there was a lack of accurate data as to the exact state of the base of these dams before the fill was begun. I initiated a resurvey, as I stated in my testimony, of these three dams in order to ascertain their present outside dimensions. We also made careful soundings on the water side of them. With these data so obtained we reconstructed the shape of each dam and figured its contents in cubic yards as near as practicable" (pp. 2034-5).

And again:

"Between the survey of the outside of the dam where it joined the natural country, and with these cross-sections and with some old approximate longitudinal sections we have, as close as can be possibly ascertained, reconstructed the dam and made a plan of that dam, of the bottom of the dam where it joins its foundation. In regard to San Andreas and the Crystal Springs upper dam, we were more fortunate; there was an old plan of both and that guided us.

"XQ. 2172. You want the Court to decide this case from estimates you have made from two old cross-sections. You want the Court to decide this case from that data alone, that is all you have, and a resurvey of the bottom of the dam. Is that your idea?

"A. No, sir; and a resurvey of the shape of the dam, of its dimensions as it appears now" (pp. 2037-8).

And further:

"XQ. 2179. The fact is that you have not any accurate data about that work at all, is it not?

"A. The data are as accurate as they are possibly obtainable.

"XQ. 2180. You say you have no data at all except these cross-sections?

"A. Yes, sir; and the resurvey of the dam.

"XQ. 2181. I mean data that harkens back to the time the dam was built?

"A. No, sir; we have no accurate data, but we have reproduced the situation as near as practicable, of the dam as it was at the time it was being constructed" (p. 2039).

Also:

"MR. PARTRIDGE—XQ. 2201. Those two cross-sections would only show the depth down to bedrock at two different points, would they not?

"A. Yes, about in the middle of the valley. They were about 20 or 40 feet apart.

"XQ. 2202. Do you know that the depth of the cut was uniform?

"A. It was quite uniform. It fell a little bit deeper toward the west, under the creek, and then it rose up again on the top of the bedrock, running about parallel, or as near parallel as I can remember, with the slopes of the valley. Then, as the slopes rose up on the sides, it varied somewhat. In some instances, we had to go deeper, and in some instances it was shallower.

"XQ. 2203. Have you any original notes from which those profiles were made up?

"A. No, sir, I have not.

"XQ. 2204. Do you know who made those profiles?

"A. I believe I made this one myself.

"XQ. 2205. Which one? You say there were two.

"A. These two; they are on one sheet.

"XQ. 2206. Are you sure that you did?

"A. Yes, sir, I am pretty certain of it. I am satisfied that I did make these profiles.

"XQ. 2207. Do you know from what data you made up those two profiles?

"A. From surveys.

"XQ. 2208. Did you make them yourself?

"A. Yes, sir, I was the only assistant engineer then, and

I had to make all the surveys. I am very intimately acquainted with the situation, and fortunately I have a very good memory and I have used that to reconstruct from these data about what the dam contained.

"XQ. 2209. Then why was it necessary for you to make resurveys if you had such a clear recollection of it?

"A. You mean a resurvey of the dam?

"XQ. 2210. Yes, since this suit was commenced.

"A. Well, that was natural; I wanted to be sure to see whether my former rough estimates that have been made on these dams—how near they were correct. Those estimates were made simply and principally with the view to ascertaining, as closely as possible, what those dams did contain. That was for reports to the directors and for general use, but when it came to a suit, and I was to be a witness in a suit—and I am very conscientious and I want to come as near the truth and the facts as I possibly can—I then told Mr. Kellogg that I wanted to resurvey those earth dams and make up, as near as a human being can make it up nowadays, about what the contents of those dams were and also about how the situation was at the time when the construction was commenced, and I think I have succeeded in coming very close to it. Nobody living or dead could have come any nearer to it unless he had the absolutely accurate survey of it" (pp. 2042-4).

Mr. Schussler admitted an error of 16,000 cubic yards in his calculation of removal of top soil and embankment work at Pilarcitos Dam, and made a reduction of \$20,000 in his estimate in respect to this (pp. 2025-6). The following from his testimony refers to this matter:

"XQ. 2164. That would make a difference also as to the depth of the cuts, would it not?

"A. No, sir.

"XQ. 2165. Would they not be a half yard greater in

clay if the top soil was only a yard instead of a yard and a half?

"A. No, sir, the cuts are figured according to the profiles as furnished.

"XQ. 2166. How do you know that those profiles are correct?

"A. As I have stated very distinctly, they are as near as we can get at it at this late day.

"XQ. 2167. I know that, but I want to know how you get at it?

"A. We have some old plots of two of the valleys; of Pilarcitos, for instance, we have no plot of that.

"XQ. 2168. You have no plot of that. How did you get at it for that?

"A. We have a couple of old cross-sections of the dam which show, about the middle of the dam, how the profile looked. We have also made a careful resurvey, as shown in the plots filed of the dam as it appears, and where it joins the valley on the water side as well as on the dry side, and also the slopes of the hills.

"XQ. 2169. That would not show the depth of the cut, would it?

"A. The depth of the cut is shown distinctly in the two profiles, which we have of the cross-sections of the dam" (p. 2037).

And:

"XQ. 2173. And you admit that in giving your direct testimony you were mistaken as to the depth of the sub-soil?

"A. I simply make this correction now because I have taken some little time to look into it to see if everything was about as near as we could get at it.

"XQ. 2174. What investigations led you to believe that you were mistaken?

"A. I thought it over a good deal and it recurred to me that some of the excavations of the sub-soil being two feet, and in some instances a little less——

"XQ. 2175 (Int'g.). How did you know that?

"A. I simply remembered that in thinking over it, and besides, these two old cross-sections that I had made me think over it and refreshed my memory.

"XQ. 2176. Do those cross-sections indicate the depth of the sub-soil?

"A. No, not exactly.

"XQ. 2177. How did that refresh your memory?

"A. I got at it as near as I could, and I made up my mind that the depth of the top-soil was estimated by my assistants somewhat too deep; that is all.

"XQ. 2178. Then those estimates that you gave on your direct examination were made by your assistants, were they?

"A. Yes, and I checked them over as near as possible" (pp. 2038-9).

Further as to data on which he based his estimates on Pilarcitos Dam, Mr. Schussler testified:

"XQ. 2195. What data have you to show where the clay pits are located?

"A. That is largely from recollection. The clay pits are scattered over the valley. I have been over there and approximated about where the clay pits were located.

"XQ. 2196. Is there any indication at the present time as to where those clay pits are?

"A. There would be if the lake were empty.

"XQ. 2197. In going over the valley you estimated where they were. Is there anything there now to indicate where those clay pits are?

"A. There is not now, as long as the water is over them.

"XQ. 2198. From what data do you form your estimate of the distance of the clay pits—the situation of them?

"A. The average distance from the clay pits to the dam, as near as I can remember it, is about from 300 to 320 or 350 yards; I think I called it 900 feet or 1,000 feet.

"XQ. 2199. That is purely from your recollection, is it?

"A. That is my recollection. Furthermore, I remember that the average number of trips made by the wagons, in 10 hours' work, was in the neighborhood of from 24 to 25

trips a day. This estimate of mine is based on an 8-hour day, which is the basis of our day's work.

"MR. KELLOGG—XQ. 2200. At the present time?

"A. Yes, sir" (pp. 2041-2).

Again:

"XQ. 2211. You say that the pits ran from 7 to 8 feet in depth. Which pits?

"A. The clay pits.

"XQ. 2212. Have you any data on that?

"A. No, sir, I simply know they ran from 7 to 8 and sometimes they ran deeper.

"XQ. 2213. How do you know that?

"A. I remember that, especially where the pits were at the foot of the side hill.

"XQ. 2214. You recollect for 40 years the depth of the clay pits?

"A. Well, not exactly, but that was about the average. The blasts we made used to blow out about 7 or 8 feet in depth, sometimes 10 feet; it depends upon the slope of the hill. I was very particular as to the quality of clay; frequently we opened a pit and it did not turn out good—it was too poor.

"XQ. 2215. Where had you learned to distinguish the quality of clay at that time?

"A. I had not only some little experience in it, but the principal thing was, as I think, I had a fair judgment in these matters. I was extremely rigid with the contractor. We had a contractor there at the time——

"XQ. 2216 (Int'g.). Was the dam built by contract?

"A. No, sir, but a part of it.

"XQ. 2217. How much of it?

"A. I do not remember that.

"XQ. 2218. You remember the depth of those pits, but you do not remember how much of the dam was built by contract?

"A. No, sir, but I can show you by this profile.

"XQ. 2219. The profile shows how much of it was built by contract?

"A. No, sir, but the profile shows what the original dam was. Most of that was built by contract. The contractor had taken the work too cheap. I was extremely rigid, and so was the superintendent, about the quality of the material, and in working it, and the consequence was the contractor lost a good deal of money" (pp. 2044-5).

And again:

"XQ. 2586. Mr. Schussler, how did you estimate the distance of the haul from the clay pits in the case of the blue clay? You estimated the distance from 1,000 to 1,500 feet. How did you get at that?

"A. That was about the average haul. We found no stiff puddle clay near the dam, and even if we could have found it we would have been rather afraid to take it away from that location for fear of opening up loose seams, thereby taking chances of leakage water underneath the bed of the valley working toward the puddle pit. The general location of the puddle was fairly in the bottom of the middle portion of the reservoir. The reservoir appears to have been formerly a lake which broke through at some prehistoric time at the place where the present dam is, and it is possible that that largely caused the settling of stiff blue clay in certain quarters more than in others. The distance averaged about that much, as near as we can reproduce it now" (p. 2119).

And further:

"XQ. 2265. You stated that in the Pilarcitos cut you sheet-piled the cut 12 feet apart. How do you get your data for that?

"A. The fact of the sheet-piling I remember; the distance apart is shown on the profile.

"XQ. 2266. On the original profile?

"A. Yes, sir. That was in lieu of timbering" (p. 2058).

Also:

"XQ. 2275. You state that the layers of the clay were put in not to exceed 12 inches thick in the loose dump?

"A. Yes, sir, about that.

"XQ. 2276. How do you know that?

"A. That is as near as I recollect, and that has been our custom ever since; in some places if the dump rises a little higher, in dumping from the wagon, it is spread out. We have men on the dump constantly.

"XQ. 2277. I do not want to know what you do now; what did you do then?

"A. That was the same custom in regard to the compresure of the layers that we carry on to-day.

"XQ. 2278. I do not want to know that. I want to know how you know what you did then?

"A. That is my recollection of it.

"XQ. 2279. How do you remember that the layers were put on with a pitch of one foot in 30 or 40?

"A. I said about one foot in 30 or 40. That is what I stated.

"XQ. 2280. How do you know that?

"A. The pitch varied. I remember that near the bottom they were more level, and near the top, as the dump became narrow, the pitch was steeper; it varied, as near as I can recollect, between the figures I gave there.

"XQ. 2281. Your estimate of one foot in 30 or 40 is your recollection?

"A. Yes. That does not change the cost at all, or the difficulty of the work. It was simply to solidify the dam so as to invite any settling tendency to be toward the center.

"XQ. 2282. How do you know that the puddle-pit was put on in layers not to exceed 3 inches?

"A. That is my recollection of it also" (pp. 2059-60).

Also:

"XQ. 2587. How did you estimate the distance that you had to handle the rip rap?

"A. We estimated that by the average number of trips

that the teams made. The distance that we gathered those hard float rocks varied a great deal, and it is very difficult to establish exactly the distance. The description I gave in my direct testimony which covered the length of the haul of a two-horse team hauling about one cubic yard of loose rock to the trip, making four round trips a day, traveling over the various scattered rough fields, constantly changing the routes as well as the length of the hauls; that team, in making an average of four round trips, established approximately the distance. Sometimes, when they went to fields further off, they made less trips, sometimes 3 and sometimes 5, but the average was about 4 trips a day" (pp. 2119-2120).

DEFECTIVE CONSTRUCTION OF PILARCITOS DAM.

Mr. Schussler stated that all the work on the Pilarcitos system was first-class.

"The work that I hereafter describe, particularly the construction of the Pilarcitos dam and the waste-weir, gate-house and so forth, are all built in first-class style, with extreme care, of the best of material, and the dam, particularly, has been built in the manner that I have just now described in detail with the greatest of care" (p. 724).

And:

"XQ. 2223. Do you consider that this dam was built in absolutely first-class style?

"A. Yes, there never has been a better piece of work done than that dam" (p. 2046).

In contrast to these statements by Mr. Schussler we have the testimony of Mr. W. H. Lawrence, who supervised the construction of the dam, given in 1879 in

litigation then pending in San Mateo county, as follows:

"Q. Well, now, can the capacity of this reservoir be increased?

"A. No, sir, not eventually, no, sir.

"Q. Why not?

"A. Because the dam is 94 feet high and it is not safe to build it higher; at least, I do not think it is.

"Q. Is that understood to be amongst men who are in this business, that that is the limit of the height of the dam?

"A. No, sir, it is not understood to be the limit, but it is for that dam.

"Q. As a safe limit?

"A. Well it is for that dam.

"Q. Why?

"A. There are unfortunate circumstances in building it.

"Q. What are they?

"A. This was our first experiment and the engineer then engineering the work——

"Q. Who was that?

"A. Mr. Calvin Brown; in building the puddle-pit, when we got the dam up about 70 feet, he left one night and when he went up there the next morning the dam had went down about 10 feet.

"Q. The foundation was not built?

"A. No, sir, it was not properly constructed" (p. 2047).

Mr. Lawrence's statements as to settling of dam are corroborated by the following extracts from the Minutes, Book B, page 498, May 28, 1874:

"The President informed the Board that there was attention required at the Pilarcitos dam, he then called in Mr. Schussler and Mr. Lawrence, who gave the Board a full explanation of the cause, etc., and also how it was proposed to remedy the trouble. After full consultation the work was

ordered to be done at once. The President requested such members of the Board as could go down and see the dam, to do so next day."

Mr. Emery, who, as previously stated, had the contract for this dam, testified:

"Q. 38. What methods did you use in the excavation of that Pilarcitos dam, and the building of the dam itself? Just describe it as fully as you can, and as you best remember it? Where you got the clay, how you used it, and so forth; give us a description in detail?

"A. It was very difficult to find the proper material there; the bed-rock would come up pretty high. There was very little clay around there. We got the very best material we could get and put it in. Some we hauled a long distance; we went away up the road and hauled it half a mile. Some blue clay I found in the valley, in the bed of the reservoir; that was used in the puddle-pit. After we had built up some 20 or 30 feet high we put that in. We put in common yellow clay and then watered it thoroughly and mashed it up with shovels and so forth, and made it like you would mix clay for making bricks; a person would have to put a plank down over it before they could walk over it. After we found the blue clay we used that the whole distance up.

"Q. 39. Was that a better quality of clay?

"A. It was a better quality, yes; it did not need any water with it. It was moist enough to be pounded down solid and made perfectly water tight.

"Q. 40. The lower part of the puddle-pit was a poorer quality of clay, was it?

"A. Yes, sir. "It was the best we could get at the time. We did not know of the blue clay at the time. We put the best in there, and then the second quality on the water side of the dam and then the poorer quality, if there was any poor quality on the lower side" (p. 36-37).

Upon cross-examination, Mr. Schussler admitted that dams built in 1860 to 1866, with the then state of engineering knowledge, were probably not as good dams as would be built at the present time (pp. 2053-4). In answer to XQ. 2477 (p. 2094), he said:

"A. Under the circumstances, that these dams were located above towns of considerable centers of population, there was no possibility of a risk that we were allowed to take. In fact, if I had known then what I know now I would not have built any earth dams, I would have built stone or concrete dams."

PILARCITOS WASTE WEIR TUNNEL.

In the remainder of the discussion on structural works, considerable attention is given to the estimates on brickwork in the various tunnels, etc. Mr. Schussler is shown to have been very extravagant in his conception of the cost of this portion of the work, and the majority of his statements are called in question by the testimony of the contractor (Mr. Higgins), who did the work, and Mr. Carey, who through being employed by the company in hauling and other work was intimately acquainted with the actual construction.

In the case of the Pilarcitos Waste Weir Tunnel, no evidence appears in the record from contractors or workmen, but Table No. 20 shows how materially Mr. Schussler differed in his estimates from both Mr. Adams and Mr. Schuyler, in spite of the fact that those witnesses, as in all cases, accepted Mr. Schussler's quantities.

TABLE No. 20.

PILARCITOS WASTE WEIR TUNNEL.

BRICKWORK.

	Mr. Schussler.	Page.	Mr. Adams.	Page.	Mr. Schuyler.	Page.
Number of brick in Tunnel...	305,600	751	305,600	5034	305,600	5514
Number of Brick in Chute....	6,384	756	6,384	5034	6,384	5515
Average brick laid per day....	Nearly 500	754	1,000	5076		
Cost per 1000 brick.....	\$ 56.00	751,756	{ \$ 35.85 38.25 }	{ 5034 } { 5034 }	\$ 36.35	5514-5
Total cost	19,217.00	751,756	11,200.00	5034	11,340.00	5514-5

Difference between Mr. Schussler's estimate and average of estimates of Messrs. Adams and Schuyler=\$7,947.00.

On the bricking of a structure, which, according to Mr. Schussler, would cost at the present time \$19,217.00, complainant's own witnesses named above gave an average of \$11,270.00; such a difference (nearly double) on a comparatively small piece of work like this shows the utter unreliability of Mr. Schussler's estimates and goes to confirm the testimony quoted later of Messrs. Higgins and Carey on the bricking of other structures.

While the main point of difference undoubtedly lies in the fact that Mr. Schussler's unit cost so greatly exceeded that of the other two witnesses, a very important item is the average number of brick laid per man per day. Table No. 20 shows that while Mr. Adams considered 1000 brick a day as a fair day's work, Mr. Schussler estimated the capacity of his "extraordinary good men" (p. 2076) at nearly 500.

DISCREPANCIES IN MR. SCHUSSLER'S QUANTITIES.

In many places in this brief attention is called to the fact that Mr. Schussler's figures on contents largely exceeded those given by contractors who did the work. This would have the effect of considerably inflating his estimates, and, as Messrs. Adams and Schuyler accepted his quantities all through, a similar unwarranted addition in their estimates occurs. Probably a portion of the great difference between the estimates of Messrs. Schussler and Grunsky on the structural works can be

ascribed to the fact that the latter based his estimates largely on his own quantities.

This is one of the cases where counsel for defendant questioned the accuracy of Mr. Schussler's quantities. In cross-examination Mr. Adams admitted that there was a considerable discrepancy between figures obtained by computation on the total yardage of the tunnel and those supplied by Mr. Schussler (pp. 5073-4). The following further testimony by Mr. Adams shows that as usual he accepted Mr. Schussler's quantities on this brickwork:

"XQ. 789. Mr. Schussler gives the number, 305,600, as being the lining of the tunnel, and if the lining were bricked up solid it would be 285,950; the exact difference would be about 19,750 brick?

"A. That seems to be correct.

"XQ. 790. But in making your estimate of the amount it would cost to brick this tunnel, you made no independent computation to determine whether that was the correct amount of brick?

"A. No, I took the schedule as it appeared in the evidence" (p. 5075).

UPPER PILARCITOS DAM.

Mr. Schussler testified:

"The exact dimensions of this dam are not available, as we do not know exactly how deep down the dam was excavated to get a good tight foundation" (p. 762).

Again:

"It was reported and it is understood to have cost a little

over \$31,000, but calling it at \$30,000, if it was to be constructed at present, that is, during 1903-4, on account of the increased price of labor and materials, we should add 30% to the cost, which would be estimated at present at \$39,000" (p. 762).

Again:

"XQ. 2653. Has the price of *labor* increased 30% since that upper Pilarcitos dam was built?

"A. It has increased over 50%. That dam, being the result of ordinary labor and teaming combined, and a small bit of pile-driving work, a bulkhead in the middle, on thoroughly canvassing the situation I decided it would be a fair average to only allow about 30% increase" (p. 2145).

Mr. Adams, on the contrary, stated that it is a matter of common knowledge that in early days the ruling rates of wages for labor were very high (p. 5054), and that, in the case of the Pilarcitos Main Dam, his impression was that cost of labor at that time was higher than now (p. 5054).

The cost price named by Mr. Schussler agrees very closely with that appearing in Mr. Wenzelburger's Exhibit No. 101, page 226, namely \$31,376.40.

Mr. Dockweiler gave the cost at the latter figure in his list of "Properties which are seemingly in use but are not useful" (pp. 646-7).

Mr. Schuyler said:

"Mr. Schussler stated it to have originally cost \$31,000, and I accepted that figure" (p. 5517).

Mr. Grunsky in reporting to the Board of Public Works under date of February 9, 1903, on properties

not in use, stated that the Upper Pilarcitos Dam had no value (p. 413).

Mr. Schussler admitted that its only use was as a settling basin, and that he did not think he would construct it if he were rebuilding the dam now (pp. 1699 to 1705).

This Upper Pilarcitos Dam is included in our list of Properties Not in Use and the reasons therefor will be found on pages 143 to 145 of this brief.

PILARCITOS SIDE FLUME.

On all flumes (with the exception of Ocean House Flume) Mr. Schussler adopted a unit of 18 cents per foot. This unit was based on indefinite estimates of cost with 10 per cent added (pp. 2134-8).

Mr. Schussler admitted that they had no cross-sections of the excavations on any of the flumes, nor profiles showing original surface of the ground and the grade-line to which the earth was removed for the flumes (p. 2779).

Mr. Adams used a unit of 14 cents per foot on all flumes (pp. 5081-2, 5092), adopting Mr. Schussler's quantities in all cases; the information available being all based upon Mr. Schussler's evidence (p. 5083).

Mr. Adams stated that the quantity and cost of grading differ on each flume and that Mr. Schussler's evidence had given no great amount of information concerning that item.

"In order to secure a complete check upon the accuracy of his estimate or to determine the probable reasonableness of his statements, it would be necessary to have more complete information concerning the quantity and character of grading that has been required on different flumes than has been available" (p. 5083).

Again:

"XQ. 834. Do you think, Mr. Adams, that it is possible in flume work to arrive at any constant as the cost per foot board measure for the construction of flumes, taking into consideration such uncertain elements as grading and trestling and other things pertaining to the frame?

"A. It would not be possible at all to derive a unit that would be applicable to all sorts of conditions. In order to derive a unit applicable to a great many different flumes it would be very desirable to know that your unit was based upon a general average at least of such flumes. I am free to say that my own preference would have been to have had fuller and more complete information, particularly as to the cost of the sub-structures, that is, the grading and matters outside of the timber itself. So far as the timber work itself is concerned, I think that such a unit might be used within reasonable limits. For instance, here with these works where there is not any great variation in the size of flumes, and their general character, and the manner in which they are built—in fact, they are very similar—one might derive a unit of that kind which would be pretty fairly reliable as applied to the timber structure itself. The uncertainty is principally as to the grading.

"XQ. 835. There is also considerable uncertainty as to the character of the ground it passes over, as to whether you would have to pay any considerable amount for trestle-work?

"A. Oh, yes, there is considerable variation in that. As a matter of fact, with the flumes of the Spring Valley Water Company there is not any very high trestling. The trestles are built very near the ground, and most of them rest directly upon sub-soils.

"XQ. 836. That ought to reduce the cost of them?

"A. Yes, it would reduce the average cost of what it would be if you had a large amount of material below the trestle-work supporting a flume.

"XQ. 837. The cost of grading depends not only upon the amount of grading but upon the character of the earth also, does it not?

"A. Yes.

"XQ. 838. Is it possible to give a fair or reasonable estimate without knowing the amount of grading and the character of the earth?

"A. Oh, no. As a general proposition we should know those things.

"XQ. 839. Did you make any investigation to determine those things?

"A. No. The only information there was available in the evidence is that which I have made use of here. Mr. Schussler has stated, if I remember rightly, in his evidence, that the conditions as he has outlined them here represent the general average of conditions on the plant of the Spring Valley Water Company. I have no means of going further into it than that.

"XQ. 840. You could determine very readily by a simple computation the amount of material that would be used per foot board measure, could you not, in a flume of a certain size?

"A. No, you could not do that unless you knew the amount of material going into the sub-structure. So far as the flume-box itself is concerned that is, of course, easily computed, and also so far as the framework of the box is concerned, it is easily computed.

"XQ. 841. With those elements of uncertainty, would you say that your estimate of the cost per foot, board measure, of the flumes of the Spring Valley Water Company is such that it could be depended upon?

"A. Its dependence rests upon the correctness of the evidence of the chief engineer, who claims to have used this unit on the works in question and demonstrated in such work its practical reliability as applied to these works. But outside the evidence of the chief engineer on that point there is insufficient, I think, to warrant its use" (pp. 5085-7).

Again:

"XQ. 829. He gives 18 cents as the figure per foot, board measure, of clear lumber, and you give 14 cents?

"A. Yes.

"XQ. 830. How do you account for that?

"A. His 18 cents is not based on instances of actual cost in the company's experience. As he states in all his evidence it is based upon an estimate of what it probably would cost under conditions existing at a certain time" (p. 5084).

Mr. Schuyler used the same unit as Mr. Adams (14 cents per foot), for all flumes (p. 5517).

The difference between Mr. Schussler's estimate and the average of estimates of Messrs. Adams and Schuyler on the Pilarcitos Side Flume amounts to \$6,000, the unit prices and estimates of each witness being as shown on Table No. 18.

Mr. Fifield, who hauled lumber for flumes, testified:

"Q. 7. Did you ever do any work for the Spring Valley Water Works or the Spring Valley Water Company?

"A. I did. On and off I was in the employ of the company for about four or five years. At one time I hauled lumber for the Pilarcitos flume. I supplied at first a team of four oxen, afterwards a four-mule team, cared for the team and boarded myself, and the company paid me \$10 a day. I would make one trip a day from San Bruno road station to San Mateo Valley, hauling 1,000 feet of lumber. This lumber was used in the building of flumes. When the Company would rebuild a flume they would save the old lumber for the top piece of the new flume.

"Q. 8. Could you haul 1,000 feet of lumber over the same roads to-day?

"A. A four-mule team could haul 1,200 to 1,500 feet of lumber over the roads as they are to-day. When I was haul-

ing lumber for the water company the roads were in very bad shape. In some places I had to build my own roads" (p. 47).

The cost of haulage is a large item in Mr. Schussler's figures on which he based all his estimates for flumes (p. 2134). According to Mr. Fifield, the cost of hauling would be much less at the present time than at the date of construction, owing to the improved condition of the roads. Consequently on this item of haulage original cost would exceed that of reduplication.

COST FIGURES ON PILARCITOS SIDE FLUME.

Mr. Wenzelburger gave the cost of the Pilarcitos Side Flume at \$13,525.88 (Defendants' Exhibit No. 101, page 226). The difference between Mr. Schussler's estimate of \$20,000.00 (p. 806) and cost was therefore \$6474.12.

PILARCITOS TUNNEL NO. 1.

Table No. 21 shows that labor forms a very large proportion of the expense of brickwork; about 50 per cent according to both Mr. Higgins and Mr. Schussler. Consequently the average number of brick laid per man per day forms a very important feature of the estimates.

Below are given the figures supplied by each witness

PILARCITOS TUNNEL NO. I.

Brickwork.

	Complainant				Defendant	
	Mr. Schussler.	Mr. Adams.	Mr. Schuyler	Mr. Higgins.		
	Unit Prices.	Page.	Unit Prices.	Page.	Unit Prices.	Page.
Mr. Schussler Items per 1,000 Brick						
Cost of brick delivered at Millbrae, inclusive of inspection in San Jose....	\$11.00	771	\$11.00	5106	\$11.00	5524
Loading at Millbrae and unloading at Pilarcitos .....	.83	771	.67	5106	.67	5524
Hauling	7.50	771	4.33	5106	4.33	5524
Cement	8.45	771	7.95	5106	7.95	5524
Sand	3.80	771	2.70	5106	2.70	5524
Wages—Bricklayers	17.00	771-2	6.25	5106	6.90	5524
Wages—Helpers	6.45	772	2.50	5106	2.50	5524
Wages—Laborers	6.25	772-3	1.88	5106	1.80	5524
Wages—Carpenters	2.00	773	1.25	5106	1.25	5524
Round figures	\$63.28	773	\$38.53	5106	\$39.10	5524
• Mr. Higgins: "At that price I made a profit." (p. 9.)	\$63.00	773	\$38.55	5106	\$39.20	5524
Total Figures on Brickwork:						
Mr. Schussler... 341,000 brick at \$63.00 per thousand—\$23,631 (p. 770).						
Mr. Adams..... 341,000 brick at \$38.55 per thousand—\$13,146 (p. 5036).						
Mr. Schuyler... 341,000 brick at \$39.20 per thousand—\$13,367 (p. 5518).						
Difference between Mr. Schussler and average of Messrs. Adams and Schuyler—\$10,374.						
Difference between Mr. Schussler and Mr. Higgins—\$11,411.						

and it will be noted that Mr. Schussler's idea of his men's capacity was one-half of that given by either Mr. Adams or Mr. Schuyler, and less than a third of what Mr. Higgins, who did the work, stated his men actually performed. Mr. Adams, in testifying on the brickwork in the Pilarcitos Forebay, estimated the average number of brick laid per man per day at 1500 (p. 5094), which agrees with the figure of Mr. Higgins given below. The following figures speak for themselves and evidence very strongly the unreliability of Mr. Schussler's estimates.

Mr. Higgins, who did the work (p. 9), 1,500 brick.

Mr. Adams (p. 5107), 800 brick.

Mr. Schuyler (p. 5527), 800 brick.

Mr. Schussler (p. 771), 400 brick.

Mr. Higgins' testimony as to the average number of brick laid per man per day follows:

"Q. 29. Mr. Schussler further testified, at page 771: 'One bricklayer lays in this small arch and narrow tunnel about 400 brick a day, in the first-class shape that we get our work done.' Is that the fact?

"A. No. The masons I employed on that work laid, on an average, 1,500 brick a day, taking the tunnel at 1,300 feet long, and assuming that we did it in 42 days. There may be a variation of a little time. I do not think that I kept any timebook there at all (pp. 8-9).

From Mr. Higgins' testimony we make the following further extract:

"He (Mr. Abbey) said, 'Do you think you could brick

that tunnel, Mr. Higgins?' I said, 'Yes, sir, if I get enough money for it.' He said, 'How much do you want?' I said, 'I want \$25 per thousand for laying the brick.' Mr. Abbey said, 'You come to the office to-morrow morning at 10 o'clock.' The next morning I went to the office, as per appointment. Mr. Abbey was there. He said, 'Mr. Higgins, we have thought your bid over and have come to the conclusion to give you \$24 per thousand for laying those bricks, labor only, you furnishing all the necessary tools. We will take the pipe out that is in there, and put a track in there for you.' I said, 'Mr. Abbey, if I can lay those brick for \$25 per thousand, I can surely lay them for \$24; I will do it for \$24 per thousand.' Mr. Abbey said, 'There is one provision that I want to put in that contract.' I said, 'What is that?' He said, 'Mr. Higgins, Lake Honda holds 42 days' supply of water, and we let you this contract on condition that when you are at work and our water runs out, as the only supply for that reservoir is through this tunnel, that you will stop working and allow us to run sufficient through that tunnel to supply part of the city, without any extra expense to the company.' I said, 'All right, Mr. Abbey, I will do it.' Pilarcitos Tunnel No. 1 is about 1,300 feet long, according to my estimate. I will not say anything positively about the length of that tunnel because I do not know, but that was the understanding at the time.

"Q. 25. According to your estimate, it was about 1,300 feet long?

"A. That was the talk about it. Mr. Lawrence and I measured that tunnel. We are the only ones, I suppose, who ever measured it, but I really have forgotten what it was.

"Q. 26. But you estimate that it was about 1,300 feet long?

"A. Yes; it may be longer. I will not question the engineer's measurement in any case. In bricking that tunnel, I supplied the tools, cars, candles and labor, and boarded my men. The brick used in the work, and supplies by the water company were manufactured on Bald Hill by Mr. Walker, and carted over to the tunnel. They were not selected brick, but were of the same kind as were used on the

Bald Hill tunnel. The sand used in mixing mortar, likewise supplied by the water company, was gathered from the creek beds in the neighborhood of the tunnel, and hauled to the tunnel in wagons. I employed in that work four masons and eleven laborers, and with that force of men I finished the bricking of the tunnel in about 42 days. The masons averaged about 1500 brick a day, working 10-hour shifts. It took about 260,000 brick to brick the tunnel, that is, estimating 200 brick to the foot (pp. 6-8).

DISCREPANCIES IN MR. SCHUSSLER'S ESTIMATE ON BRICK- WORK OF PILARCITOS TUNNEL NO. 1.

Mr. Higgins' figure above given for the number of brick is 81,000 lower than that of Mr. Schussler. Messrs. Adams and Schuyler, as usual, accepted Mr. Schussler's quantities and therefore their estimates are 81 times the amount of their unit cost in excess of what they should be.

It is to be noted from Table No. 21 and testimony quoted later that Mr. Higgins put the total unit cost at \$47.00 per thousand brick, and in this connection it is well to remember that on his contract price for the labor he stated he made a profit (p. 9). Taking 260,000 brick as given by Mr. Higgins, and multiplying same by his unit of \$47.00 per thousand, we have a total cost figure of \$12,220.00. The difference between Mr. Schussler's estimate and cost would accordingly be \$11,411.00, or an increase of nearly 100 per cent, which is not justified by anything in the record. The difference between Mr. Schussler's estimate and the average of

the estimate of Messrs. Adams and Schuyler is shown by Table No. 21 to be \$10,374.00, evidencing a fairly close agreement between those witnesses and Mr. Higgins.

In all his estimates on brick Mr. Schussler used a unit figure of \$11.00 per thousand based on purchase at San Jose and inspection and selection in the brick yard there by a representative. Mr. Higgins' testimony quoted below shows that this brick was made on Bald Hill at a cost of \$8.00 per thousand:

"Q. 27. Mr. Schussler, on his direct examination, in estimating the cost of bricking that tunnel, testified as follows, page 771 of his testimony: 'The brick delivered at Millbrae, inclusive of inspection and selection at the brickyard, per thousand, \$11.' Were the brick used in Pilarcitos Tunnel No. 1 hauled over from Millbrae?

"A. They were not; they were made at Bald Hill and hauled from there (p. 8).

And:

"Q. 32. Mr. Schussler's estimate of the complete cost of bricking that tunnel is \$63.28 per thousand. What is your estimate of the complete cost to the water company on bricking that tunnel?

"A. The brick were obtained at Bald Hill and would cost, including the wood supplied by the company for burning the same, \$8 per thousand; allowing \$5 a thousand for teaming, the cost of the brick delivered at the tunnel would be \$13 per thousand. The sand and cement, including hauling, I estimate at \$10, per thousand brick laid. The labor cost \$24 per thousand brick laid, making a total of \$47. That is my estimate of the complete cost, per thousand brick laid, in the Pilarcitos tunnel" (pp. 9-10).

Mr. Schussler employed the same unit for sand (\$3.80) used in the brickwork on this tunnel as he did in the case of the Pilarcitos Waste Weir Tunnel and Pilarcitos Tunnel No. 2. In connection therewith Mr. Schussler stated that there was no sand fit for brickwork in that portion of San Mateo County and that all the sand had to come from San Francisco County, being delivered in barges at San Mateo Wharf or Millbrae Wharf at a cost of \$1.60 per cubic yard. The haulage to Pilarcitos cost the remaining \$2.20 (p. 753). Mr. Higgins' testimony as follows shows that the sand was obtained from the creek beds in the neighborhood of the tunnel:

"Q. 28. Mr. Schussler also states the cost of sand, per thousand brick, at \$3.80. Is that the fact?

"A. The sand cost nothing but the hauling. It was gathered in the creek beds in the neighborhood of the tunnel" (p. 8).

Mr. Higgins in the following testimony was shown to have made a profit on his contract price of \$24.00 per thousand brick for labor on the bricking of this tunnel. Yet Mr. Schussler fixed the labor at \$31.70 per thousand brick as shown in Table No. 21.

"Q. 30. Mr. Schussler, on page 772 of his testimony, figures the cost of bricklayers, wages and board, for each 1,000 brick laid, at \$17 each; the cost of helpers, per thousand brick, at \$6.45; the cost of laborers per thousand brick, at \$6.25; and the cost of a carpenter, per thousand brick, at \$2.00; making the total cost of labor engaged in laying the brick, \$31.70 per thousand brick. Is that what it cost you?

"A. My contract price was \$24 per thousand brick, I to

provide all the men necessary to lay the brick and board them. At that price I made a profit. I paid the bricklayers \$5.50 per day and board, which I figured at \$5.00 per week. Bricklayers averaged 1,500 brick a day. There were no hod-carriers or mortarmen employed, the only other men being laborers, to whom I paid \$40 per month and board, which I figured at \$2.25 per day, including board. There were no carpenters employed by me, or engaged on the work. The templates were not set by a carpenter; they were made and brought to me and were set by the masons and laborers.

"Q. 31. You mean that each bricklayer averaged 1,500 brick a day?

"A. Yes, sir" (p. 9).

While Mr. Schuyler adopted a unit of less than two-thirds of Mr. Schussler's figures per thousand brick, he accepted the latter's estimates of the number of brick in the tunnel, without personal investigation. He said:

"XQ. 269. Did you make any estimate of the number of bricks it would take to line that tunnel?

"A. No, I did not.

"XQ. 270. You accepted Mr. Schussler's figures?

"A. I simply took Mr. Schussler's figures.

"XQ. 271. Did you have a section of that tunnel, or did you see the section of the tunnel that is on file as an exhibit here?

"A. Yes, sir, I saw those exhibits.

"XQ. 272. You merely took his figures on the quantities there?

"A. Yes, sir.

"XQ. 273. Did you test out any one of those to determine whether or not the quantities were correct?

"A. No, I did not" (pp. 5518-19).

The same figures for quantities were adopted by Mr. Adams.

DEFECTIVE CONSTRUCTION OF PILARCITOS TUNNEL NO. 1.

That Pilarcitos Tunnel No. 1 was poorly constructed is shown by the following testimony:

Mr. Higgins:

"MR. LONG. Q. 24. We will next take up the Pilarcitos tunnel. Will you describe the conditions of the Pilarcitos tunnel at the time you started your work, and give us an account of the work you performed on that tunnel?

"A. In the year 1871 the Spring Valley Water Works sent for me and told me they wanted to brick the old tunnel, meaning Pilarcitos No. 1. That tunnel was drifted by Mr. Von Schmidt and was originally 6 feet out of grade at the outlet end, that is, at the center where the two drifts met one was 6 feet above the other. Subsequently it was drifted out again along the bottom and made equal. At the time I inspected the tunnel it was in very bad shape. The ground was continually caving in and the water company kept men there all the time to replace the timbering and to timber the falling ground. The trouble with the tunnel was that in drifting it they had, by using too much powder, loosened up the ground all around, and when the timbers began to rot the ground would cave in. Mr. Schussler, Mr. Abbey, Mr. Lawrence and I drove to the tunnel and went through it clean to the end. Mr. Abbey said, 'How do you like it?' I said, 'It is a bad looking arrangement, is it not?'" (p. 6).

Mr. Emery:

"Q. 50. Have you any knowledge of the Pilarcitos tunnel and the manner in which it was constructed?

"A. Yes. The tunnel was bored through before I went there. The upper end of it was lower than the lower end. They put a flume in it, and they had to raise the flume up to the upper end as high as they could get it so as to get the water through.

"Q. 51. That was an engineering defect, was it?

"A. I do not know who built it. I believe Von Schmidt had charge of it. Both ends did not strike in the right place" (p. 38).

The following extract from the Minutes, Book "B," page 378, under date of September 1, 1870, confirms the above quotations from the testimony of Messrs. Higgins and Emery:

"The President reported the dilapidated condition of Pilarcitos tunnel and informed the Board that it would have to be bricked as soon as possible."

DRIFTING OF TUNNELS ON PILARCITOS SYSTEM.

Messrs. Schuyler and Adams adopted Mr. Schussler's figures, both as to quantities and unit cost, on the drifting of the various tunnels on the Pilarcitos System (pp. 5034, 5036, 5037, 5514, 5518-20), the difference in the totals of those two witnesses and Mr. Schussler being represented by the usual 10 per cent for contingencies added by Mr. Schussler.

COST OF REDUPLICATION LESS THAN ORIGINAL COST ON
DRIFTING OF PILARCITOS TUNNELS.

Mr. Schussler, speaking of Pilarcitos Tunnel No. 2, testified as to present cost being less than original cost as follows:

"This tunnel cost originally about \$11.50 to drift, with the timbering; it can now be done for about \$9.00 a foot, inclusive of the timbering" (p. 775).

Again:

"XQ. 3800. You state that this tunnel cost originally \$11.50 to drift with the timbering?

"A. Yes, sir.

"XQ. 3801. From what did you get that figure?

"A. That is my recollection of the old contract we made with a man named De Noon. That tunnel No. 2 was drifted by contract. I think that was the figure at that time. Since that time the modern methods have been introduced, and I think lumber is somewhat cheaper now than it was then, also the method of using the small drill and using giant powder—the method has cheapened, so that now we can do it for a lesser figure, which lesser figure I have stated in my estimate; I believe it was \$9.00.

"XQ. 3802. How about labor?

"A. Labor has increased. We pay the miners more now than we paid in those days.

"XQ. 3803. Considering the advance in labor, you think it would be cheaper now than then?

"A. Yes, because the method is better. We find the method we use compares favorably with other estimates we have made. In spite of the advance of the labor that is used in tunnel work and in timbering work, we find that we can do the work for less money now than it would cost then. I have made allowance for that in my estimate" (pp. 2452-3).

Further in connection with Pilarcitos Tunnels Nos. 1 and 2, Mr. Schussler testified:

"In my estimate of the present value or cost of reconstructing the present tunnels Nos. 1 and 2 at Pilarcitos, owing to the cheaper cost of tunneling nowadays and owing to the use of smaller drills and owing to the use of giant powder, I have reduced the estimate of cost of those tunnels in my official estimate from the actual cost in 1866-67 of 40 cents a cubic foot—it really was 39.6 cents per cubic foot, exclusive of ten per cent for incidentals—I have reduced that figure of approximately 40 cents a cubic foot down to 30 cents a cubic foot—and inserted that in my estimate at the point opposite to the figure "30," which represents the number of cubic feet of rock excavated per running foot. I have also inserted another tunnel which is the Locks Creek tunnel and Davis tunnel; they being larger in area, the cost reduces in price per cubic foot, so that where the smaller tunnel is estimated at only 30 cents a cubic foot, the Locks Creek and Davis tunnel, having 45 square feet area, is reduced to 22 cents a cubic foot, or \$10 a running foot.

"In a similar manner the cost per cubic foot excavated in the tunnels, inclusive of timbering, as the tunnel increases in size, decreases per cubic foot. In my estimate of the waste-weir tunnel at Pilarcitos, which has a cross-section of 90 square feet, my estimate of the cost per cubic foot excavated is reduced from the original figure of 30 cents per cubic foot in the smaller tunnels to 22.2 cents per cubic foot in the tunnels holding 45 cubic feet per running foot down to 16.8 cents per cubic foot in the tunnel running 90 cubic feet per running foot, which brings the cost of this large tunnel, having an area of 90 square feet in its excavation, down to \$15.10 per running foot, inclusive of drifting and timbering, and which I have reduced, in round figures, to \$15. That is very close to what, with careful management it would cost now" (pp. 2122-3).

The minutes show, however, that the same Mr. De Noon, to whom Mr. Schussler refers, contracted for

the Lake Honda tunnel, *timbered*, at \$8 per foot. As Mr. Schussler's estimate for this tunnel is the same as for the two Pilarcitos tunnels, the same cost price must be assumed. If Mr. Schussler's memory of the cost price of this tunnel is erroneous to the extent of \$3.50 per foot, what shall be said of his other estimates based on recollection?

The minute record referred to is found in Book "B," pp. 234-5 and is as follows:

"November 15, 1866. The President reports that he has given the contract of the Lake Honda tunnel to Mr. R. P. De Noon at \$8.00 per lineal foot, timbered."

The contract with Mr. Higgins which is set forth on pp. 17, *et seq.*, of defendants' testimony gives the contract price of drifting the Six Mile tunnel in South San Francisco as \$4.95 per foot (p. 19). Mr. Higgins also says that he received \$7.75 per foot for drifting the Bernal Heights tunnels (pp. 23-4).

According to Mr. Schussler's testimony these figures would be much less now on account of improved methods. His deduction from his recollection of the contract price on the Pilarcitos tunnels on account of these improvements is \$2.50 per foot.

From the following, it will be noted that Mr. Schussler had no data in respect of the work on Pilarcitos Tunnel No. 1:

"XQ. 2658. What data have you on the size of the cut in Pilarcitos Tunnel No. 1, that is, I mean what original data?

"A. We have the shape of the ground as it was cut out for the purpose of receiving the gate-house; we have the exact size of the gate-house. There is an exhibit filed here giving the dimensions of the cut that was made. We have re-surveyed the ground by surveying outside and above the high-water line, and also by careful soundings where the ground is covered with water, and thus we have reproduced on the plan the exact shape of the ground as it was before this cut for the Pilarcitos Tunnel No. 1 gate-house was made. We have also a close estimate of the amount of rock that was excavated. By reproducing this diagram from what it formerly was, and cutting out of it what it is now, that is, what it had to be in order to place that gate-house into this rock excavation, we have been able to get quite close to the size of it.

"XQ. 2659. Is that a record that you have kept in the office since this tunnel was built?

"A. You mean the gate-house?

"XQ. 2660. I mean a record of the rock taken out?

"A. No, we have not that. I am explaining to you that we have reproduced that, as nearly as practicable, by a very careful survey and reproducing the statu quo of the ground prior to the time that the cut was made" (pp. 2147-8).

Mr. Adams admitted that he did not know what character of soil those tunnels were driven through (p. 5096); and that it is not possible to estimate the cost of tunneling with accuracy without that information (p. 5097); that in his Pasadena report, he estimated drifting of tunnels in rock at from \$5 to \$7.25 per foot; in soft earth at \$4.50 per foot, and in gravel at from \$2 to \$2.50 per foot (p. 4967); that in a paper on the Astoria Water Works he described a tunnel driven partially through rock and partially through an exceedingly hard, compact black shale, which cost on an average \$7.66 per foot, built with cement; and de-

ducting the lining, the actual labor of drifting averaged \$4.82 per foot (pp. 5101-5).

Why these estimates of \$9 per foot as against all these figures of less cost of construction in this system and elsewhere, and the evidence that the work can be done more cheaply now than originally?

PILARCITOS TUNNEL NO. 2.

The following Table No. 22 gives a comparison of the estimates of Messrs. Schussler, Adams and Schuyler on the bricking of Pilarcitos Tunnel No. 2. It will be noted that Mr. Schussler's estimate exceeded that of Mr. Adams by \$23,123.00.

TABLE No. 22.

PILARCITOS TUNNEL NO. 2.

Brickwork.

	No. of Brick	Unit Price per M.	Estimate	Page
Mr. Schussler	752,000	\$63.00	\$52,113.00 (Inclusive of 10%)	775
Mr. Adams	752,000	38.55	28,990.00	5036
Mr. Schuyler	752,000	59.00	44,368.00	5519

Mr. Schuyler added \$20 per thousand, on account of increased length of tunnel.

He testified:

"XQ. 287. Will you give the details for tunnel No. 2.

"A. For tunnel No. 2 I used the same general units, with the addition of \$20 for the double length of the tunnel, the longer wheeling and the more difficult work.

"XQ. 288. Can you not give us the details?

"A. No, I did not make up any other details than those I have given.

"XQ. 289. You simply arbitrarily added the sum of \$20.00 or \$19.80 because that tunnel was longer?

"A. Yes, sir, I considered that the cost would be about 50 per cent greater.

"XQ. 290. You think that as a matter of fact the cost of bricking tunnel No. 2 must have been 50 per cent greater than the cost of bricking tunnel No. 1; is that the idea?

"A. I think in all probability that was the case, yes, sir" (pp. 5524-5).

Mr. Schussler stated that the price of \$63.00 per thousand brick laid, "holds good for tunnel No. 1 and " tunnel No. 2, because the circumstances are just about " alike, except in tunnel No. 2 it was just about twice " as long and may have occasioned a slight additional " expense, but I have classed it here at the same price " as tunnel No. 1" (p. 770-1).

The following figures are given in respect to the average work per day per man:

Mr. Schussler (pp. 771, 775), 400 brick a day.

Mr. Adams (p. 5108), 800 brick a day.

Mr. Schuyler (p. 5527), 800 brick a day.

Mr. Adams used the same unit in Pilarcitos Tunnels Nos. 1 and 2 (p. 5108).

LAKE HONDA TUNNEL.

Table No. 23 following gives details of the unit prices of Messrs. Schussler, Adams and Schuyler on the bricking of Lake Honda Tunnel, together with the total estimates of those witnesses.

TABLE No. 23

LAKE HONDA TUNNEL.

Brickwork.

	Mr. Schussler.		Mr. Adams.		Mr. Schuyler.	
ITEMS.	Unit Price.	Page.	Unit Price.	Page.	Unit Price.	Page.
Brick, delivered at Ocean View, inclusive of inspection at the brickyard	\$11.00	792	\$11.00	5117	\$11.00	5525
Loading and unloading..	.62	792	.33	5117	.34	5525
Hauling	4.00	793	3.25	5117	3.25	5525
Cement	7.50	794	7.30	5117	7.30	5526
Sand .....	.35	794	.35	5117	.35	5526
Bricklayers	17.00	794	6.25	5117	6.90	5526
Helpers and Laborers..	12.70	795	4.38	5117	4.38	5526
Carpenters	2.00	795	1.25	5117	1.25	5526
Totals	\$55.17	796	\$34.11	5117	\$34.77	5526
Round Figures	\$55.00	796	\$34.10	5117	\$35.00	5526

Total Estimates on Brickwork:

Mr. Schussler—564,000 brick at \$55.00 per thousand, plus 10%=\$34,122 (p. 791).

Mr. Adams—564,000 brick at \$34.10 per thousand=\$19,232 (p. 5037).

Mr. Schuyler—564,000 brick at \$35.00 per thousand=
\$19,740 (p. 5520).

Difference between Mr. Schussler's estimate and average of Messrs. Adams and Schuyler, \$14,636.

From Table No. 23 it will be noted that Mr. Schussler's unit and total costs as usual far exceeded those of Messrs. Adams and Schuyler, the difference between his total estimate and the average of the other two witnesses being \$14,636.00, or about 75 per cent excess. That such an excess is absolutely unjustified is proved by the fact that on the bricking of the arches and forebay at the Lake Honda Reservoir, almost immediately adjoining the work on the Lake Honda Tunnel, Mr. Schussler gave a unit of \$39.00 per thousand brick (pp. 1352-3), which is still above the units of Messrs. Adams and Schuyler, but is unquestionably a much truer and fairer figure.

The following figures are given by the several witnesses on the average number of brick laid per man per day in this tunnel, Mr. Schussler's being only one-half the figure of the other two witnesses who agree:

Mr. Schussler (p. 794), 400 brick a day.

Mr. Adams (p. 5117), 800 brick a day.

Mr. Schuyler (p. 5527), 800 brick a day.

In connection with this structure Mr. Adams stated that he had accepted Mr. Schussler's quantities throughout:

"XQ. 975. In regard to that Lake Honda tunnel, did you

make any calculation to determine whether or not the number of brick given is correct?

"A. No. I have taken Mr. Schussler's schedule as to the quantities in these various structures without question" (p. 5120).

COST FIGURES ON LAKE HONDA TUNNEL AND TANKS.

In comparison with Mr. Schussler's estimate of \$70,560.00 for the Lake Honda Tunnel and Tanks (p. 806), a figure of \$52,372.12 is given in Mr. Wenzelburger's Exhibit No. 101, page 227, covering the cost of those structures. Mr. Schussler's estimate therefore exceeds cost by \$18,187.88, or about thirty-four per cent.

LAKE HONDA SCREEN HOUSE.

Mr. Schussler adopted a figure of \$65.00 per screen, with his usual addition of 10 per cent for contingencies, which he arrived at on a very indefinite basis, as shown at pages 797 to 801 of his testimony.

Mr. Adams accepted Mr. Schussler's figures on quantities and cost:

"For lack of any detail information as to quantities of materials entering into that structure, I was not able to prepare any segregation of it" (p. 5119).

Again:

"In the absence of any details as to the structure more than he has given in his evidence, I have accepted his figure" (p. 5120).

Mr. Schuyler said:

"Mr. Schussler's estimate of the cost of this was \$14,640, which I accepted and used without change" (p. 5521).

The only difference between the estimates of Messrs. Schussler, Adams and Schuyler on this structure are in respect to the 10 per cent for contingencies added by the first-named.

SAN ANDREAS SYSTEM.

The total estimates of the several witnesses on the various structures included in this system are shown on Table No. 24.

SAN ANDREAS DAM.

Table No. 3 shows that there was a considerable difference between Mr. Schussler's estimates in this suit on the San Andreas Dam and those given by him in the Water Rate Investigation of 1900-01. While in this suit his total estimate for the dam, waste weir, forebays, gate houses, outlet shafts and appurtenances was \$682,500.00 (pp. 878, 2182), in 1901 he gave a figure of \$445,000.00 (pp. 2476, 2505) covering the same structures.

Mr. Wenzelburger gave the following taken from complainant's books (Defendants' Exhibit No. 101, p. 226) :

San Andreas Dam.....	\$340,083.90
San Andreas Reservoir.....	91,968.72
San Andreas Water Weir.....	14,000.00
San Andreas Forebay.....	15,407.84
	<hr/>
	\$461,460.46

This figure, however, undoubtedly includes buildings at reservoir, screen house and measuring tank on which Mr. Schussler gave independent estimates totaling \$22,800.00 (Tables Nos. 3 and 24). Making allowance for this, the cost figure agrees very closely with Mr. Schussler's estimate in 1901 of \$445,000.00.

Mr. Adams is also in fairly close agreement with a figure of \$488,541.00 (p. 5135) and Mr. Grunsky (adding in the ten per cent) with \$474,910.00 (Tables 3 and 24). Mr. Schuyler gave the somewhat higher figure of \$500,632.00 (p. 5547).

It will be seen from the above that the estimates of the other three witnesses run within \$26,000.00 of each other, being about seven to fifteen per cent additional on cost, while Mr. Schussler stands alone and unsupported.

That Messrs. Adams and Schuyler as usual adopted Mr. Schussler's quantities is shown by the following:

Mr. Adams said:

"XQ. 989. In making your estimate of the San Andreas

MR. GRUNSKY			
Page— Municipal Reports, 1901-2.			
Total Estimates— Report to Board of Public Works, 1-26-04.			
Page— Municipal Reports, 1901-2.			
Total Estimates— Report to Board of Public Works, 1-30-03.			
Page of Testimony.	5532 5532 5532 5532 5532 5532		
Total Estimates.	5532 5533 5533		
HUYLER			

dam did you make any independent calculations to determine whether or not Mr. Schussler's figures of amounts were correct?

"A. No, I have accepted his schedule of quantities as being correct" (p. 5126).

Mr. Schuyler testified:

"XQ. 833. Did you make any investigation to determine whether or not you could find out the real actual cost of that San Andreas dam, or, did you merely accept the general statements of the company's officials that you could not determine from the books the cost of the various structures?

"A. I accepted Mr. Schussler's statement that it was not possible to obtain from the book record the entire cost of any of those structures" (p. 5619).

Quotations from Mr. Schussler were given at pages 345 and 346 of this brief showing that he had no more accurate data for his estimate than an old survey and his recollection. He further testified as follows:

"XQ. 2703. Have you any profiles or other plans or details of the construction of the San Andreas dam, that is, originals?

"A. We have a plan of the valley as it was before the topsoil was dug down, an old survey, and that has enabled us to get much closer to the quantities in that dam than otherwise.

"XQ. 2704. How did you get the depth of the topsoil?

"A. In the computation that was figured at one and one-half yards because there were a number of places where the depth was much greater than that but, as I stated in connection with the Pilarcitos dam, I have revised that so as to reduce that also to an average of one yard, although that is within the dimensions.

"XQ. 2706. How did you get the details for the cut for the puddle-pit on the San Andreas dam? From what did you make them up?

"A. That we have made up largely from recollection. That puddle-pit was, I think, somewhat deeper. We consulted about that. The puddle-pit was 20 feet wide instead of 12, at Pilarcitos.

"XQ. 2707. Where did you get the data from which you made up the estimates?

"A. As I stated in my original direct testimony, before commencing the description of these works, that where the accurate data were missing we reconstructed these profiles of these dams as near as possible, and having the advantage, in the case of the San Andreas dam, of having found the old plot of the valley as it existed before the dam was built, from that we reconstructed not only the cross profiles but also the longitudinal profiles along the center line of the puddle-pit. There being no record in the office of the depth of the puddle-pit, except that I remember distinctly that in the middle of the valley some portions of the puddle pit were 40 to 42 feet in depth, while toward the sides it gradually decreased to 30, 25 and 20 feet up on the slopes we have reproduced a profile of this dam and this puddle-pit, as near as can possibly be produced, and from that we have figured the approximate cubical contents of the various portions of the dam, that is, as near as anybody can get at it. The methods are subject at any time to the inspection of your experts. Nobody can get any nearer to it.

"XQ. 2708. You have no more accurate data than that plot of the valley and your recollection?

"A. Those, of course, are very close, because this dam I had full charge of myself and I watched it very closely" (pp. 2163-4).

Mr. Schussler admitted an error in his calculation of 25,900 cubic yards in respect to removal of top soil and embankment work and made deduction of \$33,000 in his estimate (pp. 2180-2).

SAN ANDREAS WASTE WEIR TUNNEL.

On the bricking of this tunnel the following figures in respect to the average day's work are given:

Mr. Schussler (p. 825) 500 brick a day

Mr. Adams (p. 5124a) 1000 brick a day

Mr. Higgins (p. 15) 1000 brick a day

Messrs. Adams and Higgins are shown to be in agreement, with a figure from Mr. Schussler of just one-half. Mr. Higgins testified as follows:

"Q. 47. We will next take up the San Andreas waste-weir. What work did you do on that?

"A. I was employed as foreman on the San Andreas waste-weir, which was built in 1874 and 1875. Besides myself there were three masons and eight laborers employed by the water company on that work. Most of the waste-weir was constructed of brick brought from San Jose, I think, but a portion of it was constructed of brick made at Bald Hill, the same kind of brick used on the Bald Hill tunnel, the Pilarcitos tunnel and the Lock Creeks tunnel. I would say that we averaged about 1000 brick a day. We must have averaged, I think, from 1000 to 1200 brick a day to the man, but we will say 1000 brick a day. I want to be on the safe side of this thing" (p. 15).

Table No. 25 following gives the details of the units of Messrs. Schussler and Adams on this brickwork.

TABLE No. 25.

SAN ANDREAS WASTE WEIR TUNNEL.

Brickwork.

Mr. Schussler's Items (per 1000 brick)	Mr. Schussler.		Mr. Adams.		Mr. Schuyler	
	Unit Price.	Page.	Unit Price.	Page.	Unit Price.	Page.
Cost of brick delivered at Millbrae, inclusive of inspection in San Jose.....	\$11.00	821-22	\$11.00	5123A		
Loading at Millbrae and unloading at San Andreas.....	.83	822	.67	5123A		
Hauling	3.75	822	2.17	5124A		
Cement	7.65	823	7.33	5124A		
Sand	3.25	824	3.20	5124A		
Wages, Bricklayers	13.60	825	5.00	5124A		
Wages, Helpers	6.45	825	2.00	5124A		
Wages, Laborers	3.75	826	1.50	5124A		
Wages, Carpenters	2.00	826	1.00	5124A		
Totals	\$52.28	827	\$33.87	5124A		
Round figures	\$52.00	827	\$33.80		\$35.00	5533

Total Estimates—

Mr. Schussler: 696,000 brick @ \$52.00 per thousand = \$39,811.00 (p. 821).

Mr. Adams: 696,000 brick @ \$33.80 per thousand = \$23,524.00 (p. 5121).

Mr. Schuyler: 696,000 brick @ \$35.00 per thousand = \$24,360.00 (p. 5533).

Difference between Mr. Schussler and average of Messrs. Adams and Schuyler = \$15,869.00.

DISCREPANCIES IN MR. SCHUSSLER'S STATEMENTS ON BRICKING OF SAN ANDREAS WASTE WEIR TUNNEL.

In the following testimony Mr. Schussler stated that the brick was specially selected in the brickyard:

"We culled and selected the brick out of the brickyards and, including the wages and expenses of our inspector at

the brickyard, the brick, delivered at Millbrae station, cost \$11. That is the kind of selected choice hard burned brick that we took. At Millbrae the brick were loaded into wagons, and at this tunnel they were unloaded by men" (pp. 821-2).

Mr. Higgins, who superintended the work, flatly contradicted Mr. Schussler's statements as above. He said:

"Q. 48. I will call your attention to a portion of Mr. Schussler's testimony on the San Andreas waste-weir, page 820 of his testimony: '696,000 selected brick, laid in this waste-weir tunnel'; were those selected brick?

"A. They were not. As a matter of fact, some of those brick were left over from the kilns on Bald Hill, and that was a good portion of them; the remaining portion was hauled from Millbrae; I presume they came from San Jose. That part of the waste-weir that took the part of the flume at the outlet end was constructed in 1874, the other portion was constructed in 1887. The part of the waste-weir which took the place of the flume was built of brick, which were originally brought from the Crystal Springs dam, and which were at one time rejected by Mr. Schussler as not suitable. Those brick were hauled up, and I built the second portion of the San Andreas waste-weir of these brick. These brick were what you would call an ordinary brick, I would not take them for a first-class brick, or even for a good brick" (pp. 15 and 16).

Regarding the sand used in this brickwork, Mr. Higgins said:

"Q. 51. Mr. Schussler testified, at page 823 of his testimony, that the sand was delivered at the San Mateo wharf by schooners, and hauled from there over to the waste-weir; is that the fact?

"A. The only time I know of sand being imported was on the Crystal Spring dam. The sand in all other instances was gathered from the creek beds in the neighborhood of the work being done" (p. 16).

Mr. Carey testified:

"Q. 34. Did you haul sand for any other work?

"A. Yes, sir.

"Q. 35. What work?

"A. The San Andreas waste-weir.

"Q. 36. Where did you get the sand?

"A. The sand hauled for the San Andreas waste-weir was also gathered in the creek bottoms near Millbrae.

"Q. 37. Can a four-mule team haul as many barrels of cement as you did?

"A. No, sir; I had a six-mule team. A four-mule team can only haul about 16 barrels of cement to the load" (p. 46).

In contrast with statements made by Messrs. Higgins and Carey as to sand taken from neighboring creeks, Mr. Schussler testified as follows:

"The sand was delivered at San Mateo wharf by schooners at \$1.60 per cubic yard. A 4-horse team hauls $2\frac{1}{2}$ cubic yards from San Mateo wharf to the County road, along the County road to Millbrae, then up over Bald Hill to the waste-weir; it returns in the evening, thus making one round trip a day. This 4-horse team costs \$7.50, and as it hauls to the load $2\frac{1}{2}$ cubic yards, it costs \$3.00 per cubic yard to haul this sand from the San Mateo wharf to the San Andreas waste-weir. Adding this \$3.00, the cost of the hauling to the \$1.60, the cost of the sand delivered at the San Mateo wharf, delivered there from San Francisco by schooner, makes the cost per cubic yard delivered at the waste-weir \$4.60. A cubic yard makes 7 barrels. Dividing 7 into \$4.60 gives 65 cts. a barrel, the cost of the sand delivered at the dam and waste-weir. As for each 1000 brick we use 5 barrels of sand, the cost of the sand per thousand brick, is 65 times 5, or \$3.25" (pp. 823-4).

Mr. Adams adopted Mr. Schussler's figure for the cost of sand (p. 5124a).

In regard to Mr. Schussler's statements as to hod-carriers, carpenters and other labor employed (pp. 825-6), Mr. Higgins testified:

"Q. 49. How many men were engaged on that work for the entire time?

"A. There were four bricklayers, including myself, and eight helpers, or laborers rather. I received \$7 a day, and the other brickmasons received \$6 a day. Later on they paid me \$200 per month. There were no hod-carriers engaged on the work, nor was there a carpenter; except I will state this, that at the outlet end of that tunnel it was funnel shape and they had carpenters to make a center for the inlet end of the waste-weir of that tunnel. It was a large center, and it was funnel shape, and it required a carpenter to do it. That was put up and we bricked it over.

"Q. 50. That was the customary way of bricking an arch?

"A. Yes, sir, we did it in the usual way, according to the engineer's instructions" (p. 16).

BALD HILL TUNNEL.

Table No. 26 following is a comparison of figures given by Messrs. Schussler and Higgins on the brick-ing of Bald Hill Tunnel. It will be noted that Mr. Schussler's estimate is very nearly double that of Mr. Higgins.

TABLE No. 26.

BALD HILL TUNNEL.

Brickwork.

	MR. SCHUSSLER.	Page.	MR. HIGGINS.	Page.
Length of tunnel	2,820 ft.	863	2,800 ft.	3
Number of brick to running foot.....	200	864	183½	3
Total number of brick	564,000	864	513,800	5
Cost per 1000 brick.....	\$ 11.00	864	\$ 8.00	5
Labor per 1000 brick.....			15.00	3
Total cost per 1000 laid (including labor, board, cement, brick, etc.)....	59.00	864	34.00	5
Total cost of bricking tunnel.....	\$36,603.00	864	\$17,469.00	5

Difference between estimate of Mr. Schussler and cost stated by Mr. Higgins equals \$19,134.00.

The following extract from Minutes of complainant, Book "B," under date of May 16, 1870, confirms the contract price for labor given by Mr. Higgins, as in Table No. 26:

"The bricking of Bald Hill Tunnel had been let at \$15 per M brick" (p. 366).

DISCREPANCIES IN MR. SCHUSSLER'S STATEMENTS ON
THE BRICKING OF BALD HILL TUNNEL.

Mr. Schussler testified that the brick used in the Bald Hill Tunnel cost "as heretofore illustrated" (p. 864), *i. e.*, \$59.00 a thousand. The figures in the previous cases and, therefore, in this case, were based on a cost of \$11.00 per thousand delivered at Millbrae, including cost of inspection at San Jose, loading at Millbrae and unloading at destination, haulage from Millbrae, sand, etc. (pp. 771, 792).

Mr. Schussler further said:

"We only use hard burned brick, so that if you take two and strike them together, they ring with a sound, showing thorough compactness and first-class burning" (p. 2124).

Mr. Higgins, who did the bricking of the tunnel, testified that the brick were slop made; that they were made on Bald Hill by Chinamen at \$2.00 per thousand; that the contractor, who manufactured the brick for the Company, got \$6.00 per thousand; that the brick complete cost about \$8.00 as against Mr. Schussler's \$11.00; that the sand was gathered from the creek beds. Mr. Higgins' testimony follows:

"Q. 10. We will now, Mr. Higgins, take this work up more in detail. First, the Bald Hill tunnel; will you give us a description in detail of the work you did on the Bald Hill tunnel?

"A. I bricked the Bald Hill tunnel, under a contract with

the company, in the year 1870. The contract price for the work was \$15 per thousand brick laid—

“MR. KELLOGG (interrupting)—I object to any testimony as immaterial, irrelevant and incompetent, as to the cost of the work, or the contract price. It is not in issue in the pleadings, and not relevant to the issue that is involved in these cases.

“MR. LONG—Proceed with your answer, Mr. Higgins.

“A. (continuing)—the company to provide the brick, and the sand and the cement, and I to provide all the tools and the labor necessary to do the work. That price included taking down the timbering in the tunnel, furnishing my own cars, candles and labor, and boarding my men. I was engaged on that contract with four masons, besides myself, and nine laborers, for about four and one-half months. We laid 2,800 feet of brick, that is, the tunnel was about 2,800 feet. There were $183\frac{1}{2}$ bricks to the running foot. I was to have been paid for 205 brick to the foot, but when Mr. Schussler and Mr. Abbey came out to the work, Mr. Schussler measured off 10 or 20 feet and figured up $183\frac{1}{2}$ brick to the foot. I said, ‘I understand I was to have 205 brick to the foot,’ Mr. Abbey then said it would be a bad precedent if they put in the books what was not in the work. I was therefore paid at the rate of $183\frac{1}{2}$ brick to the running foot. The brick laid in the Bald Hill tunnel were supplied by Mr. Walker, who was supervisor and sheriff of San Mateo county. These brick were slop made and were made on Bald Hill by Chinamen, at \$2.00 a thousand; Mr. Walker supplying the pug mill, horses and tools and a foreman to watch the work. Mr. Walker made them for the company at \$6.00 per thousand. The cement used on all this work was Rosedale cement.

“Q. 11. Did the company supply the wood?

“A. They were to supply the wood. Mr. Walker made these brick for \$6 per thousand, complete, the company to supply the wood to burn them with.

“Q. 12. And they cost how much?

“A. About \$8. I do not know much about that, but I think it was about that.

“Q. 13. \$8 altogether?

"A. Yes, sir.

"Q. 14. Who was to provide the sand?

"A. They furnished all materials.

"Q. 15. The company furnished all materials—brick, sand and cement.

"A. Yes, except labor and the tools necessary to do the work. They furnished the water. The cement used on all this work was Rosedale cement and came from the East. It took a little over two barrels of cement to the 1,000 brick laid. The sand was hauled from Millbrae. It was gathered from out of the creek beds in that vicinity. A team hauled two loads a day. I used two parts sand and one part cement on that work.

"Q. 16. From your knowledge of the fact, what do you estimate the cost to the Spring Valley Water Works, per thousand brick, of bricking the Bald Hill tunnel?

"MR. KELLOGG—The same objection as last stated.

"A. My contract price for laying the brick was \$15 a thousand, which included the furnishing of the cars and the candles. I estimated the cost of the brick at \$9.50 per thousand.

"Q. 17. Including everything?

"A. Yes, and the hauling; \$8 for the brick, and I allowed \$1.50 for hauling them down to the tunnel. Including labor, and boarding my men, and counting on $2\frac{1}{2}$ barrels of cement to the 1,000 brick laid; the cost of the sand and brick, including hauling, I estimated at \$9.50. The sand was gathered from the creek beds and the only cost was for hauling. That would make the entire cost about \$34 per thousand brick laid.

"Q. 18. You said you laid 2,800 feet of brick, with $183\frac{1}{2}$ brick to the running foot; how many thousand brick would that make?

"A. 513,800 in the Bald Hill tunnel.

"Q. 19. And at a complete cost of \$34 per thousand, what did the bricking of the Bald Hill tunnel cost the Spring Valley Water Works?

"A. \$17,469.

"Q. 20. Do you know who drifted the Bald Hill tunnel?

"A. Hancock and Kelso, I was told, when I got there.

"Q. 21. Do you know who drifted the Bald Hill tunnel?

"A. Hancock and Kelso" (pp. 2-5).

Mr. Higgins in the above stated that 513,800 brick were used in the Bald Hill Tunnel, and this figure appears under Mr. Higgins' name in Table No. 26. There is a difference of 50,200 in the total number of brick, as between Mr. Higgins and Mr. Schussler, and this is one of the cases where we claim that Mr. Schussler overestimated his quantities. At various points in this discussion on the structural works it has been shown that Mr. Schussler had little or no data on which to base his quantities. We contend that Mr. Schussler's estimate should stand reduced by fifty (being the number of thousand) times his unit of \$59.00 per thousand. As Messrs. Adams and Schuyler adopted Mr. Schussler's quantities their estimates should be similarly reduced by multiples of their units of \$38.55 and \$40.00 per thousand respectively (pp. 5124, 5537).

In support of Mr. Higgins' statement previously quoted that the sand was gathered in the creek beds near Mlilbrae and cost nothing but the hauling, the following extract from Mr. Carey's testimony is given:

"Q. 26. Did you do any other work for the water company?

"A. Yes, sir.

"Q. 27. What was it?

"A. I hauled sand for the water company.

"Q. 28. How much did you carry to a load?

"A. Two or three yards. I put in side boards and tail boards and filled the wagon up about 16 inches high. The wagon was about four feet wide. I hauled sand for the

Bald Hill tunnel and got the sand in the ravine near Millbrae, about one and a half or two miles from there.

"Q. 29. How many trips a day did you make?

"A. I made two trips a day to the Bald Hill tunnel. I always used six mules" (p. 45).

DRIFTING OF BALD HILL TUNNEL.

On the drifting of this tunnel Mr. Schussler gave a unit of \$9.00 per foot and a total of \$27,918.00 (p. 865). In connection therewith he testified that the reduplication cost would be less than the original cost as follows (p. 864):

"The drifting of this tunnel at that time when it was drifted cost between \$10.50 and \$11.00 a running foot, inclusive of timber. It can now be done for about \$9.00 a running foot."

Mr. Schussler in his position had access to and was cognizant of all contracts, and yet the following extract from the Minutes of complainant, Book "B," under date of June 1, 1869, shows that the contract for drifting Bald Hill Tunnel was let to Messrs. Kelso and Hancock at \$8.50 per foot:

"On motion, duly seconded, the action of the President was approved in letting contract to Mess. Kelso & Hancock for the drifting of the Bald Hill tunnel at the rate of \$8.50 per running foot" (p. 333).

Bald Hill Tunnel is shown to be 2820 feet long (p. 863), which at \$8.50 per foot equals \$23,970.00. This is \$3,948.00 lower than Mr. Schussler's estimate, which

could not be accounted for by the cost of the portion timbered. Yet Mr. Schussler in his testimony distinctly stated that the present cost was less than the original cost.

An additional feature of this case is that, according to the Minutes of complainant, the contractors made a profit of about \$4,000.00 on their contract. This proves more than ever the absurdity of Mr. Schussler's statements as to the amount of original cost, and discloses such an utter disregard of facts as shown by the record as to stamp his estimates as wholly unreliable. The Minute record referred to is quoted from Book "B" as follows:

"May 1st, 1870.

"Mr. Luning said that he had heard that the Contractors of Bald Hill Tunnel had cleared \$15,000 on their contract. The Presdt. said that the report was not correct & reflected on the judgment of himself, the Supt. & Engr. of the works & requested that a committee be appointed to inquire into the actual profit of said Tunnel to the contractors. On motion duly 2nd it was Resolved, That Mr. Walker be appointed to investigate the matter & report at next meeting" (p. 364).

"May 16, 1870.

"Mr. Walker reported that he had investigated the actual cost of the Bald Hill Tunnel and was of opinion the Contractors had made not to exceed \$4000 on their contract" (p. 366).

It is noticeable that on the drifting of Bald Hill Tunnel Messrs. Adams and Schuyler gave higher units and total costs than Mr. Schussler (pp. 5124, 5536), but the importance of this is discounted by the fact that

they accepted Mr. Schussler's statement of original cost at \$10.50 as quoted above. Mr. Adams' testimony in this connection is as follows:

"XQ. 1013. To come back to the San Andreas System, you give the cost of drifting that Bald Hill tunnel at \$10.50 a foot. That you take to be the actual cost of it as given by Mr. Schussler, do you?

"A. Does his evidence give \$10.50?

"XQ. 1014. He says it actually cost from \$10.50 to \$11.

"A. I presume that is the information which I have used in adopting that figure.

"XQ. 1015. He goes on to state that the present cost of it would be only \$9.00. Do you consider that the cost of drifting tunnels in 1903-4 was less than it was at the time the Bald Hill tunnel was drifted?

"A. That is pretty difficult to say. That tunnel was driven a good while ago. The improvements in explosives might make some difference in the cost of driving. A price of \$10.50 per lineal foot on a tunnel of that character at the present time would be considered a reasonable figure.

"XQ. 1016. What is there about that tunnel that would make it cost more than these other tunnels, tunnel No. 1 on Pilarcitos and tunnel No. 2, and the Lake Honda tunnel, and so forth?

"A. I do not know that there is any special reason to my knowledge as to why the one should probably cost more than the other. In determining a reasonable price on tunnels one has to admit a considerable range of variation. It is not possible to forecast the cost of tunnel work certainly within 20% or 25%.

"XQ. 1017. Did you have any knowledge of the ground in tunnel No. 1, tunnel No. 2, and the Lake Honda tunnel and again in the Bald Hill tunnel which justifies your difference of \$1.50 a foot for driving?

"A. I presume that in adopting \$1.50 more on that point I was influenced chiefly, perhaps altogether, by Mr. Schussler's statement that the actual cost was \$10.50. The effort

of my estimate, you will recall, has been to determine the probable actual cost of the work. If I had adopted \$10.50 on the other tunnels I would not have considered it an extravagant assumption at all" (pp. 5132-4).

DAVIS TUNNEL.

The cost of the Davis Tunnel is given by both Mr. Wenzelburger (Defendants' Exhibit No. 100, p. 229), and Mr. Reynolds (Complainant's Exhibit No. 113) at \$32,287.08, which is \$9,212.92 less than Mr. Schussler's estimate of \$41,500.00 (p. 844).

SAN ANDREAS SCREEN HOUSE.

In arriving at a basis for his estimates on screen houses, Mr. Schussler stated that he had the cost of two of the screen houses, *i.e.*, San Andreas and University Mound (p. 797). Later he stated that this cost was his estimate of the cost to reproduce in 1903-04 (p. 800). He divided his estimate of cost in each case by the number of screens in each screen house and averaging the result got a unit of \$65.00 per screen (pp. 800-1). This figure he used in his estimates for all screen houses, adding his usual ten per cent for contingencies.

The following extract from Mr. Schussler's testimony will show that these screen houses were not exactly identical in construction:

"XQ. 4687. Do they have the same quantity of concrete in their foundations?

"A. Generally about the same, yes.

"XQ. 4688. And the excavations are of the same kind of soil?

"A. That you cannot tell. The excavation is usually very slight. For instance, at Lake Honda the excavation was just some light trenches in which the concrete piers were put; and that is so little that it can be neglected. The concrete foundation is generally about the same.

"XQ. 4689. Are they all constructed of the same size and area?

"A. No, sir, they are of various sizes, but we count by the number of screens. I have given all the details in my direct testimony.

"XQ. 4690. Are they all constructed of the same character and size of lumber?

"A. The frames of the screens are as near alike as we can get them. We are guided by certain sizes, for instance, the width of the cloth" (pp. 2708-9).

Again:

"XQ. 4693. Have you any record of the actual cost of those screen houses?

"A. Yes, I have one here.

"XQ. 4694. I mean of all of them?

"A. No, sir, I have not. We have a very close record of the San Andreas screen house and of the University Mound screen house, and by that we can judge very closely what the others cost us.

"XQ. 4695. When were those screen houses built—the last two you mentioned?

"A. The University Mound screen house, I do not remember exactly, but it must be about 8 or 10 years ago. My estimate is based on the present scale of wages.

"XQ. 4696. What it would cost now?

"A. Yes, sir, what it would cost now.

"XQ. 4697. Have you any record of what it actually cost when it was built?

"A. I have not, no, sir.

"XQ. 4698. Have you for any of the screen houses?

"A. I do not think I have. I simply have the time spent on it. It could probably be worked up by taking the old schedule of wages at that time.

"XQ. 4699. How did you get the time spent on it?

"A. The time was given to me. The foreman that had charge of it gave it to me" (pp. 2709-10).

Messrs. Adams and Schuyler adopted Mr. Schussler's quantities and figures on materials and labor, with the exception that Mr. Schuyler added an amount of \$8.00 to his total for labor (pp. 5124, 5537).

LOCKS CREEK AQUEDUCT.

The total estimates of the several witnesses on the structures included in this Aqueduct are shown on Table No. 27.

LOCKS CREEK TUNNEL NO. 1.

A comparison of the estimates on the bricking of this tunnel is given in Table No. 28, which shows that Messrs. Higgins, Adams and Schuyler were closely agreed on the cost, their unit and total costs being remarkably close to each other. Mr. Schussler stands alone, being some \$20,000.00, or about seventy per cent, higher.

UYLER		MR. GRUNSKY	
Total Estimates.	Page of Testimony.	Total Estimates— Report to Board of Public Works, 1-30-03.	Page—Municipal Re- ports, 1901-2.
		\$ 74,287.00	805
•	5572 5572		
\$ 58,368.00	5572	76,800.00	805
	5572 5573		
76,834.00	5573	70,600.00	805
	5572 5572 5572 5572		
7,486.00	5572	6,000.00	805
20,900.00	5572	10,164.00	805

Table No. 27

LOCKS CREEK AQUEDUCT

MR. SCHUSSLER					MR. ADAMS					MR. SCHUYLER					MR. GRUNSKY	
STRUCTURES.	Contents.	Unit Price.	Estimates (Itemized).	Total Estimates.	Page of Testimony.	Unit Price.	Estimates (Itemized).	Total Estimates.	Page of Testimony.	Unit Price.	Estimates (Itemized).	Total Estimates.	Page of Testimony.	Total Estimates—Report to Board of Public Works, 1-26-06.	Page—Municipal Reports, 1901-2.	
Locks Creek Flume—																
Grading	24,210 ft.		\$ 33,400.00		1021											
Labor of building flume.....			31,800.00		1022											
Lumber			43,000.00		1023											
10% for contingencies			10,820.00		1023											
Total: Locks Creek Flume.....				\$ 119,000.00	1023			\$ 87,413.00	5171					\$ 74,287.00	805	
Locks Creek Tunnel No. 1—																
Excavation	3,200 ft.	\$ 9.00	28,800.00		1017	\$ 9.00	\$ 28,800.00		5171	\$ 9.00	\$ 28,800.00		5572			
Brickwork (per M.)	704,000 bricks	66.00	46,464.00		1018	41.35	29,110.00		5171	42.00	29,568.00		5572			
10% for incidentals			7,525.00					57,910.00	5171			58,368.00	5572	76,800.00	805	
Total: Locks Creek Tunnel No. 1.....				82,800.00	1018											
Locks Creek Tunnel No. 2—																
Excavation	3,530 ft.	10.00	35,300.00		1026	9.00	31,770.00		5172	10.00	35,300.00		5572			
Concreting, complete	78,366 cu. ft.	.62	49,000.00		1027-9	.53	41,534.00		5172	.53	41,534.00		5573			
10% for contingencies			8,430.00		1029			73,304.00	5172			76,834.00	5573	70,800.00	805	
Total: Locks Creek Tunnel No. 2.....				92,500.00	1029											
Pilarcitos Stone Dam—																
Excavation (Rock)	190 cu. yds.	1.50	285.00		1012	1.50	285.00		5171	1.50	285.00		5572			
Stone Masonry	16,145 cu. ft.	.50	8,072.00		1012	.40	6,456.00		5171	.40	6,456.00		5572			
Masonry in piers	715 cu. ft.	.75	536.00		1012	.50	358.00		5171	.50	358.00		5572			
Brickwork (per M.)	10,700 bricks	66.00	600.00		1012	35.52	381.00		5171	36.00	385.00		5572			
10% for contingencies			949.00		1013			7,482.00	5171			7,486.00	5572	6,000.00	805	
Total: Pilarcitos Stone Dam.....				10,400.00	1013											
Pilarcitos Stone Dam Flume—																
Grading	4,300 ft.		4,800.00		1014											
Labor			6,900.00		1014											
Lumber			9,200.00		1015											
10% for contingencies			2,090.00		1015			15,901.00	5171			20,900.00	5572	10,164.00	805	
Total: Pilarcitos Stone Dam Flume.....				23,000.00	1015											
San Mateo Valley Clay Settling Dam—																
Removal of top soil	2,450 cu. yds.	.40	980.00		1034	.38	931.00		5172							
Excavation, Puddle Pit	471 cu. yds.	2.00	940.00		1034	1.50	754.00		5173							
Puddle Fill	1,200 cu. yds.	1.50	1,800.00		1034	1.10	1,320.00		5173							
Main Embankment	8,800 cu. yds.	.55	4,840.00		1034	.50	4,400.00		5173							
Waste Weir—Concrete	2,460 cu. ft.	.50	1,232.00		1034-5	.40	992.00		5173							
Wooden Chute	267 ft.	5.75	1,535.00		1035	4.48	1,196.00		5173							
12-inch Cast Iron Pipe, etc.	160 ft.		740.00		1035		740.00		5173							
10% for incidentals			1,206.00		1035			10,333.00	5173					7,128.00	805	
Total: San Mateo Valley Clay Settling Dam..				13,200.00	1035											
San Mateo Concrete Dam—																
Labor, etc.			5,100.00		1036											
Rock	820 cu. yds.		1,800.00		1036											
Cement	1,000 bbls.	2.80	2,800.00		1036	10.00	9,000.00		5173							
Sand	250 cu. yds.	4.60	1,150.00		1036			150.00	5173							
16-inch Pipe and Gates			150.00		1036											
10% for contingencies			1,100.00		1036			9,150.00	5173					7,500.00	805	
Total: San Mateo Concrete Dam.....				12,000.00	1036											
Pipe Across San Andreas Valley—																
44-inch Wrought Iron Pipe	203,700 lbs.	.106	21,592.00		1043											
10% for contingencies			2,159.00		1043			23,700.00	5173							
44-inch Wrought Iron Pipe					1043											
10% for contingencies				23,700.00	1043											
44-inch Wrought Iron Pipe	38,800 lbs.	.106	4,110.00		1046											
10% for contingencies			410.00		1047			4,500.00								
Total: Pipe Across San Andreas Valley.....				4,500.00	1047											
Concrete Tunnel, Culvert, Etc.—																
Concrete	12,040 cu. ft.		4,800.00		1046											
Cement, Sand and Rock			3,400.00		1046											
10% for contingencies			810.00		1046											
Total: Concrete Tunnel, Culvert, Etc.....				8,900.00	1046									5,800.00	805	
Buildings			8,444.00		1047											
10% for contingencies			844.00		1047											
Total: Buildings				9,200.00	1048											
Works above Stone Dam not at present in use.....														2,500.00	805	
10% for contingencies														48,610.00	805	
Total: Locks Creek Aqueduct.....				\$ 419,000.00	1048			\$ 300,192.00	4737			\$ 332,845.00	5448	\$ 364,195.00	164*	

TOTAL: LOCKS CREEK AQUEDUCT.

* Page of Testimony.

Mr. Grunsky, Report to Board of Public Works of 1-26-04 (after eliminating works gone out of use)..... \$329,861.00 (p. 185).
 Mr. Dockweiler \$320,160.00 (p. 647).
 Mr. Fitzgerald \$334,695.25 (p. 433) includes lands.

TABLE No. 28.

LOCKS CREEK TUNNEL NO. I.

Brickwork.

	Mr. Schussler.	Page.	Mr. Higgins.	Page.	Remarks on Higgins.	Mr. Adams.	Page.	Mr. Schuyler.	Page.
Length of Tunnel	3,200	1017	3,200	15	A portion done afterwards.	704,000	5171	704,000	5572
Total number of brick.....	704,000	1018	640,000	15					
Number of brick per foot.....	220	1018	200	13				1,000	5572
Number brick laid per man a day.....	400	1019	1,300	14					
Cost brick per 1000 (including hauling and handling).....	\$ 21.33	1019	\$ 17.00	14					
Cost Sand and Cement per 1000 brick, including labor	13.18	1019	10.00	14	"At that price I made a profit."				
Cost of labor per 1000 brick laid.....	31.70	1019	16.00	14	(p. 14.)				
Total cost per 1000 brick laid.....	\$ 66.00	1018	\$ 43.00	14	(Computed on Mr. Schussler's quantities)	\$ 41.35	5171	\$ 42.00	5572
Total Cost of Brickwork.....	\$ 51,110.00	1018	\$ 30,272.00	14		\$ 29,110.00	5171	\$ 29,568.00	5572

Difference between Mr. Schussler's estimate and average of Messrs. Adams and Schuyler.....\$21,771.00.
 Difference between Mr. Schussler's estimate and estimate of Mr. Higgins 20,838.00.

In all his estimates on brickwork Mr. Schussler's units on labor cost are considerably higher than those of any other witness. In the case of this tunnel, Mr. Higgins is shown by testimony quoted below to have secured the contract for the labor portion of the work at a price of \$16.00 per thousand brick. A written contract was entered into (p. 12) and the contract price included everything except materials. Mr. Schussler was naturally conversant with all contracts, yet he put the cost of the labor at \$31.70 (see Table No. 28), which is nearly double the price paid Mr. Higgins. An increase of nearly 100 per cent could not be justified under any circumstances, but is particularly inadmissible in this case as Mr. Higgins is shown to have made a profit (p. 14). Mr. Higgins' testimony follows:

"Q. 40. We will next take up the Locks Creek tunnel. What work did you do on that tunnel?

"A. I secured the contract for bricking Locks Creek Tunnel No. 1. The company asked for bids on the work and my bid was accepted. I received \$16 per 1,000 brick, for bricking that tunnel, supplying all the necessary tools and labor, and boarding my own men; the company supplied all the materials, such as brick, sand and cement. The work was done under a written contract, in which it was provided that it was to be completed within 60 days or I was to forfeit \$100 a day for every day over that time. I completed about 3,100 feet of the tunnel within the 60 days but was then compelled to stop because of a storm which washed away most of the sand and cement, and flooded the country. Later I went back alone and finished the tunnel. The brick used on Locks Creek tunnel came from Bald Hill and from San Jose. The brick from Bald Hill were used on the inlet end, while the outlet end was bricked with those from San Jose. I employed 8 bricklayers and 16 laborers on that

work. The bricklayers got \$6 per day, and board, which I figure at \$1 a day. The laborers were paid \$40 per month, and board, which I figure at \$30, making the cost of each laborer \$70 a month. We laid 200 brick to the foot, and each mason would average about 1300 per day.

"Q. 41. Mr. Schussler, in his direct testimony, page 1018, testified as follows: 'The bricking of this tunnel required an average of 220 brick per lineal foot': is that the fact?

"A. I would not like to say whether that was the fact or not. It was a tunnel about the same as the others; they called for 205 and 210. I would not say about 220. I would not like to dispute that, or say which way it was. As near as my recollection serves me I was paid for 200 brick to the foot.

"Q. 42. Per lineal foot?

"A. Yes. That is as near as my recollection serves me.

"Q. 43. Mr. Schussler likewise testified, at page 1018, that 'the brick delivered at Millbrae, inclusive of inspection at the yard, cost \$11.' Is that the fact?

"A. As I before stated, all the brick used on the inlet end of that tunnel came from Bald Hill and did not come from Millbrae."

"Q. Mr. Schussler, on page 1019, figures the cost of bricklayers' wages and board, for each 1,000 bricks laid, at \$17 each; the cost of hod carriers and mortar men at \$6.45 each per 1,000 brick; the cost of laborers at \$6.25 each per 1,000 brick; the cost of a carpenter at \$2 per 1,000 brick, making the total cost of labor engaged in laying the brick, \$31.70 per 1,000 brick. Is that what it cost you?

"A. No, sir. My contract price for labor was \$16 per 1,000 brick, I not only had to provide all the labor necessary to lay the brick, but to board the men myself, and at that price I made a profit. There were no hod carriers or mortar men engaged on the work, nor was there a carpenter. The only men employed by me were masons and laborers" (pp. 12-4).

The contract price named by Mr. Higgins of \$16.00 per thousand for the labor is confirmed by the follow-

ing extract from the Minutes of complainant, Book "B," under date of October 16, 1871:

"President reported that the contract for bricking Lock's C. tunnel had been let to R. Higgins at \$16 per M brick, with proviso as expressed in contract" (p. 422).

The average number of brick laid per man per day is given by the several witnesses as follows (Table No. 28):

Mr. Higgins (p. 14).....	1300
Mr. Adams (p. 5171).....	1000
Mr. Schuyler (p. 5572).....	1000
Mr. Schussler (p. 1019).....	400

The difference between the figures given by the respective witnesses is so marked as to need no comment. As labor forms so large a proportion of the cost, very little calculation is necessary to show how largely Mr. Schussler's estimates must exceed those of all the other witnesses, and attention is called to Table No. 28 in this connection.

Further testimony was given by Mr. Higgins, as follows:

"Q. 44. Mr. Schussler, on his direct examination, testified that the brick cost, laid in the tunnel, \$66.00 per thousand. Basing your answer upon your knowledge of the facts, what is your estimate of the complete cost to the company, per thousand brick laid in Locks Creek tunnel No. 1?

"A. \$43.00 per thousand.

"Q. 45. Will you give the details of that estimate?

"MR. KELLOGG—May it be stipulated, Mr. Long, that all

this evidence is subject to my same objection, without repeating it?

"MR. LONG—Certainly.

"A. Cost of brick, including hauling and handling..	\$17.00
Sand and cement, including hauling.....	10.00
Labor	16.00

making a total of, per thousand brick laid....\$43.00

"Q. 46. How many bricks do you estimate were laid in Locks Creek tunnel No. 1?

"A. We laid 200 brick to the foot, making, for the 3,200 foot tunnel, 640,000 brick laid, at that time. There were more in the tunnel, and I went back in the fall and finished it" (pp. 14-5).

Mr. Carey, who hauled the bricks, sand and cement, testified:

"Q. 9. You hauled bricks from Bald Hill to the inlet of the Locks Creek tunnel?

"A. Yes, sir.

"Q. 10. How many bricks did you haul a day to the inlet end of the tunnel?

"A. I made one trip a day when I made that long trip to the inlet and with a six mule team. I hauled 2,000 brick to the load.

"Q. 11. When you hauled bricks to the outlet end of the tunnel, where did you get them?

"A. They, also, came from Bald Hill.

"Q. 12. How many bricks did you haul a day to the outlet end of the tunnel?

"A. I could make two trips a day to the outlet end of the tunnel. I could haul 4,000 bricks in a day, that is, 2,000 bricks to the load, or else I would haul one load of bricks and then get a load of cement. I made two trips a day from San Andreas to the outlet end of the Locks Creek tunnel.

"Q. 13. When you hauled bricks from Millbrae or the Seventeen Mile House to the Bald Hill tunnel, how many trips a day did you make?

"A. When I hauled brick or cement from the Seventeen Mile House or Millbrae down, I made two trips to the Bald Hill tunnel, but I could make only one trip a day to the inlet end of the Locks Creek tunnel. I hauled 2,000 bricks to a load from the Seventeen Mile House.

"Q. 14. How many barrels of cement did you haul in one load?

"A. Twenty-five barrels of cement and made two trips to the Bald Hill tunnel on the short haul, and one load in the long trip to Locks Creek tunnel.

"Q. 15. In regard to that tunnel now known as Locks Creek Tunnel when you hauled to the outlet end of it, how many trips did you make?

"A. I made two trips a day to the outlet end of that tunnel.

"Q. 16. To the inlet end of that tunnel you made only one trip a day?

"A. Yes, sir.

"Q. 17. Could you make two trips a day?

"A. I could make a trip and a half a day. I could go down again and load up and put up my team. If I were doing that work at the present time I could average a trip and a half in ten hours, but working eight hours I could only make one trip a day with a six mule team, hauling 2,000 brick or 25 barrels of cement.

"Q. 18. What salary did you get?

"A. My salary was \$70 a month and board" (pp. 42-4).

And:

"Q. 30. Did you haul sand to any other tunnels besides the Bald Hill tunnel?

"A. Yes, sir, I hauled sand to the Locks Creek tunnel.

"Q. 31. How many trips did you make?

"A. Only one trip.

"Q. 32. How many trips did you make when you went to the outlet end?

"A. I made two trips. When I went to the inlet end I had to go into the San Mateo Valley and could make only one trip" (p. 45).

The foregoing testimony of Mr. Carey would seem to show that Mr. Schussler was mistaken in stating that it was necessary to reload the bricks into sleds on top of the hill and sled them down to the inlet of the tunnel (pp. 1018-9),

DRIFTING OF LOCKS CREEK TUNNEL NO. 1.

Messrs. Schussler, Adams and Schuyler all adopt a unit of \$9.00 per foot for the drifting, the only difference between their estimates being in respect to 10 per cent added by Mr. Schussler (pp. 1017-8, 5171, 5572).

The following extract from the Minutes of complainant, Book "B," page 368, under date of June 1, 1870, shows that this drifting was let at \$8.25 per foot.

"The President informed the Board that Locks Creek Tunnel had been let at \$8.25 per foot. To be completed September 1, 1871."

The difference between the cost as above (computed on Mr. Schussler's quantities) and Mr. Schussler's estimate, amounts to \$5,280.

LOCKS TUNNEL NO. 2.

While Mr. Schussler gave an estimate in this suit of \$92,500 for this structure (p. 1029), in the Water Rate Investigation of 1897-98, before the Board of Supervisors, he testified that the cost of this tunnel with mason-work lining would be \$55,000.00:

"XQ. 3817. In your testimony before the Board of Supervisors in 1897-98—you testified on the 11th day of February, 1898—did you testify as follows: 'The Locks Creek tunnel which we are drifting now, 3,550 feet long, will cost completed, with mason work lining, \$55,000.'

"A. It is possible I testified to that as my estimate based upon the wages at that time and the cost of material" (pp. 2455-6).

Again:

"XQ. 3822. Is masonry work cheaper or dearer than concrete work?

"A. That depends a good deal upon the situation. I think brick masonry would be dearer if you make it the same thickness.

"XQ. 3823. At Locks Creek?

"A. Yes, because the brick would all have to be transported up there from the railroad level" (pp. 2457-8).

Mr. Schussler here affirms that masonry lining would be dearer than concrete.

Mr. Schussler's estimate (p. 1026) shows that this tunnel was lined with concrete; the change in form of construction having been decided after the making of above estimate of cost (p. 2456).

Locks Creek Tunnel No. 2 being lined with concrete, it could not therefore be contended that Mr. Schussler's estimate of 1897-98 was made on the basis of cheaper construction.

Mr. Schuyler considered that the cost of building the Locks Creek Tunnel No. 2 would be practically the same in 1903-04 as at date of construction:

"XQ. 564. . . Do you think that would cost more or less to drift in 1903 and 1904 than in 1888 and 1889?

"A. Practically the same" (p. 5572).

PILARCITOS STONE DAM.

Table No. 29 gives the detail estimates of the several witnesses on the Pilarcitos Stone Dam. Messrs. Adams and Schuyler it will be noted closely agree, while Mr. Schussler's estimate exceeds the average of their estimates nearly 40 per cent.

Mr. Higgins, who was employed as foreman on this work, testified as follows:

"Q. 33. What was the next piece of work you did for the Spring Valley Water Works?

"A. The stone dam in Pilarcitos canyon.

"Q. 34. Will you describe in detail the work you did on the Pilarcitos stone dam?

"A. I was employed as foreman on that dam and had charge of the masons and laborers. The dam was constructed in 1871, and was built by the day, that is, the contract was let for the work. The rock for the dam was got about 200 or 300 feet away, on the upstream side, out of a

TABLE No. 29.
PILARCITOS STONE DAM.

MR. SCHUSSLER.				MR. ADAMS.			MR. SCHUYLER.			MR. HIGGINS.		
Unit Price.	Estimate.	Page.		Unit Price.	Estimate.	Page.	Unit Price.	Estimate.	Page.	Unit Price.	Estimate (Computed).	Page.
Rock Excavation (per cu. yd.)...	\$ 1.50	\$ 313.00	1012	\$ 1.50	\$ 285.00	5171	\$ 1.50	\$ 285.00	5572	\$0.37	\$6,244.00	11
Masonry in Dam (per cu. ft).....	.50	8,879.00	1012	.40	6,458.00	5171	.40	6,458.00	5572			
Stone Piers (per cu. ft.).....	.75	590.00	1012	.50	358.00	5171	.50	358.00	5572			
Brick (per 1000).....	56.00	660.00	1012	35.52	381.00	5171	36.00	385.00	5572			
		\$10,442.00	1013		\$7,482.00	5171		\$7,486.00	5572			

Difference between Mr. Schussler's estimate and average of Messrs. Adams and Schuyler = \$2,958.00.

granite canyon. There were lots of loose rock, and they did not have to blast. I do not remember a bit of powder being used. The cement was hauled from Millbrae. The sand was gathered from the creek beds in the neighborhood. A 6-mule team would haul in a load of cement, 16 to 20 barrels to the load. That was a day's trip for the team and would do us for two or three days. Then the team would haul up rock enough for one or two days. That one team kept us going, hauling the rock, the sand and the cement. There were two masons and myself and three laboring men engaged in the work. At one time I had three masons besides myself, but one mason left. Each mason, including myself as one, laid from $1\frac{1}{2}$ cubic yards to 2 cubic yards of masonry per day. The three of us working together averaged about 5 yards per day, working 10 hours. I received \$7 a day and board, and the other masons received \$4 a day and board. The laborers were paid \$30 a month and board. We used about $\frac{3}{4}$ of a barrel of cement to $1\frac{1}{2}$ barrels of sand.

"Q. 35. What do you estimate it cost a yard to construct the Pilarcitos stone dam?

"A. Not to exceed \$10. That estimate is based on the following details:

"One man \$7 a day; with board at 75 cents per	
day, makes a total of.....	\$7.75
"Two men, including board.....	9.50
"3 laboring men, at \$1.90 a day, including board..	5.70

"Total pay for labor per day.....\$22.95

"These men lay 5 yards of masonry a day, making the cost of labor, per yard, about \$4.55.

"Allowing an entire barrel of cement for each yard laid, I place the cost of cement, including hauling, at \$3.00. Cost of rock and sand, including hauling and quarrying, \$1.50. That would make the cost complete, \$9.00. I have allowed one dollar extra in my estimate" (pp. 10-11).

Mr. Higgins, on the cost of building this stone dam at the present time, said:

"Q. 36. Would you do that work for \$10 a cubic yard to-day?

"A. I would.

"MR. LONG—Q. 37. And in making that statement, you take into consideration the changed conditions, the increased cost of labor and materials, do you?

"A. Yes, I figured that out; that would be about 75 cents a yard difference.

"Q. 38. You have taken into consideration all the changes in conditions between that date and the present time?

"A. Yes, sir. I would do it for \$10 to-day" (pp. 11-12).

Mr. Schussler stated the number of brick used as 10,700, and Messrs. Adams and Schuyler base their estimates on that quantity. In this connection Mr. Higgins said:

"Q. 39. Do you know how many brick were laid on that dam?

"A. I do not. I sent a mason over from Locks Creek tunnel, where I was working on a contract job, and he alone finished the job in about four days. I did not pay any attention to it" (p. 12).

This averages out at 2,675 brick a day for this open work, which is considerably in excess of any estimates of Schussler for like work.

The following admission by Mr. Schussler shows there was no accurate data and that his quantities (and therefore those of Messrs. Adams and Schuyler) were based largely upon recollection:

"Q. 1124. And there is no data in the office to show exactly how that was built there?

"A. No, no data. We built it by the day, like most of our work, and we cut it down until we got a solid foundation. The cross-section of this dam is in the shape and in the proportion as shown in this cross-section (indicating). This line is purposely dotted so as to indicate it is not absolutely accurate this way, but this is as near as anybody can remember how it was done.

"Q. 1125. So this was made up from your memory, was it?

"A. It was made up not only from my memory but also from the memory of others who were connected with the works at that time. It is as close as anybody can come to it now" (p. 1011).

CITY DISTRIBUTING RESERVOIRS.

Table No. 30 gives the detail estimates of the several witnesses on the distributing reservoirs within the city limits.

Neither Mr. Adams nor Mr. Schuyler give full details of any of their estimates on the City Distributing Reservoirs, but care has been taken to include all possible details in Table No. 30.

LAKE HONDA RESERVOIR.

It will be noted from Table No. 3 that Mr. Adams totals the cost of the construction of this reservoir at \$109,843.00 less than Mr. Schussler (pp. 5258, 1438),

and that Mr. Schuyler gives a figure \$93,916.00 less than Mr. Schussler (pp. 5580, 1438).

Mr. Schuyler does not give the details of his estimate and comparisons cannot, therefore, be drawn as between him and Mr. Schussler. As regards Mr. Adams, below is given the principal items of difference:

	Mr. Schussler's Unit.	Page.	Mr. Adams' Unit.	Page.	Difference in their Estimates.
Stone Masonry	\$.45 per cubic ft.	1351	\$.25	5258	\$21,428.00
Brick in Arches.....	39.00 per 1,000	1353	28.00	5258	12,876.00
Sewer					6,930.00
Outlet Drain Tunnel....					4,361.00
Cement Plaster Work..	.40 per. sq yard	1356	.30	5258	4,890.00
Clay Puddle Bottom...	\$2.00 per cubic yard	1356	1.40	5258	5,852.00

Mr. Schussler quotes the seven large water gates in the forebay at \$1,595 (p. 1358). In the Minutes of the Spring Valley Water Works, Book "E," the President reported bids received for making these gates, including one from the Fulton Engineering and Ship Building Works for \$1,165:

"It was thereupon moved that the bid of the Fulton Engineering and Ship Building Works be accepted and that the contract for furnishing the gates be awarded to them" (p. 313).

This lake is divided by a wall which was built in the early history of the company for the purpose of allowing one-half of the lake to be cleaned while the



Table No. 30

CITY DISTRIBUTING RESERVOIRS

MR. SCHUSLER			MR. ADAMS			MR. SCHUYER			MR. GRINSKY				
STRUCTURES.	Contents.	Unit Price.	Estimates.	Total Estimates.	Page of Testimony.	Unit Price.	Estimates.	Total Estimates.	Page of Testimony.	Total Estimates— of Public Works.	Page of Testimony.	Total Estimates— of Public Works.	Page of Testimony.
Lake Honda Reservoir—													
Excavation	100,000 cu. yds.	.40	\$40,000.00		1349	.40	\$40,000.00		6257				
Concrete Bottom	30,000 cu. ft.	.33	9,900.00		1350				6258				
Concrete Side Wall	20,000 cu. ft.	.40	8,000.00		1350				6258				
Concrete Forebay	75,000 cu. ft.	.40	30,000.00		1351	.25	110,340.00		6258				
Stone Work	8,000 cu. ft.	.50	4,000.00		1351				6258				
Brickwork (per M.)	20,000 cu. ft.	.60	12,000.00		1352	.50	30,000.00		6258				
Brick Outlet Tunnel	888,000		33,800.00		1353	28.00	24,304.00		6258				
			4,400.00		1353		{ 1,920.00 }		6258				
Main Sewer around Lake Honda—													
Bricks (per M.)	480,000 bricks	42.00	20,160.00		1354		18,260.00		6258				
Cutting Trench	4,900 cu. yds.	.50	2,450.00		1354				6258				
Outlet Drain Tunnel—													
Drifting (per M.)	750 ft.		7,500.00		1355		12,524.00		6258				
Concrete Sewer Inlets	157,000 bricks	50.00	7,850.00		1355				6258				
Excavation of Gate Well, Slopes and Walls	2,500 cu. ft.	.35	875.00		1355				6258				
Concrete Bottom and Sides	300 cu. yds.	2.00	600.00		1355	.20	10,620.00		6258				
Concrete Forebay	75,000 cu. ft.	.40	30,000.00		1356	1.40	10,318.00		6258				
16-in. Cast Iron Pipe, Reservoir	7,370 cu. yds.	2.00	14,740.00		1356				6258				
16-in. Cast Iron Pipe	750 ft.		3,750.00		1356				6258				
Gates, etc.			1,450.00		1356				6258				
Keener's Cottages and Buildings	2,250.00		2,250.00		1356				6258				
44-in. Pipe	1,700.00		1,700.00		1356				6258				
10% for Contingencies			36,770.00		1356				6258				
Total: Lake Honda Reservoir—	174 ft.		\$404,000.00		1357		\$234,157.00		6258				
University Mound Reservoir—													
Excavation	138,600 cu. yds.	.35	48,510.00		1357	.35			6259				
Concrete Bottom	30,000 cu. ft.	.33	9,900.00		1357	.40	14,400.00		6259				
Concrete Side Wall	20,000 cu. ft.	.40	8,000.00		1357	.40	8,000.00		6259				
Concrete Forebay	75,000 cu. ft.	.40	30,000.00		1357	.40	30,000.00		6259				
Stone Work	8,000 cu. ft.	.50	4,000.00		1357	.50	4,000.00		6259				
Brickwork (per M.)	20,000 cu. ft.	.60	12,000.00		1357	.60	12,000.00		6259				
Brick Outlet Tunnel	888,000		33,800.00		1357	.60	12,000.00		6259				
10% for Contingencies			18,255.00		1357		9,380.00		6259				
Total: University Mound Reservoir—	514 frames		\$254,000.00		1357		167,109.00		6259				
College Hill Reservoir—													
Excavation (Top Soil)	4,200 cu. yds.	.40	1,680.00		1358	.30	1,260.00		6259				
Concrete Bottom	32,700 cu. yds.	.50	16,350.00		1358	.50	16,350.00		6259				
Concrete Forebay	7,500 cu. ft.	.40	3,000.00		1358	.40	3,000.00		6259				
Concrete Bottom and Sides	2,500 cu. ft.	.35	875.00		1358	.35	875.00		6259				
Concrete Forebay	75,000 cu. ft.	.40	30,000.00		1358	.40	30,000.00		6259				
10% for Contingencies			18,255.00		1358		9,380.00		6259				
Total: College Hill Reservoir—	514 frames		\$254,000.00		1358		167,109.00		6259				
Francisco Hill Reservoir—													
Excavation	41,000 cu. yds.	.30	12,300.00		1415	.30	12,300.00		6261				
Concrete Bottom	1,000 cu. yds.	1.00	1,000.00		1415	1.00	1,000.00		6261				
Concrete Side Wall	12,000 cu. yds.	.40	4,800.00		1415	.40	4,800.00		6261				
Concrete Forebay	48,000 cu. ft.	.40	19,200.00		1415	.40	19,200.00		6261				
Stone Work	8,000 cu. ft.	.50	4,000.00		1415	.50	4,000.00		6261				
Brickwork (per M.)	20,000 cu. ft.	.60	12,000.00		1415	.60	12,000.00		6261				
Brick Outlet Tunnel	888,000		33,800.00		1415	.60	12,000.00		6261				
10% for Contingencies			18,255.00		1415		9,380.00		6261				
Total: Francisco Hill Reservoir—	5,920 cu. ft.		\$9,920.00		1415		43,574.00		6261				
San Francisco Street Reservoir—													
Excavation	7,000 cu. yds.	.20	1,400.00		1402-3	.20	2,100.00		6260				
Concrete Bottom	7,000 cu. yds.	.30	2,100.00		1402-3	.30	2,100.00		6260				
Concrete Side Wall	14,000 cu. ft.	.40	5,600.00		1402-3	.40	5,600.00		6260				
Concrete Forebay	8,000 cu. ft.	.50	4,000.00		1402-3	.50	4,000.00		6260				
Stone Work	15,800 cu. ft.	.45	7,110.00		1404	.45	7,110.00		6260				
Brickwork (per M.)	20,000 cu. ft.	.60	12,000.00		1404	.60	12,000.00		6260				
Brick Outlet Tunnel	888,000		33,800.00		1404-5		4,800.00		6261				
10% for Contingencies			18,255.00		1404-5		9,380.00		6261				
Total: San Francisco Street Reservoir—	16,700 cu. ft.		\$16,700.00		1405		4,800.00		6261				
San Francisco Street Reservoir—													
Excavation	16,700 cu. ft.	.10	1,670.00		1405	.10	1,670.00		6261				
Concrete Bottom	16,700 cu. ft.	.20	3,340.00		1405	.20	3,340.00		6261				
Concrete Side Wall	33,400 cu. ft.	.40	13,360.00		1405	.40	13,360.00		6261				
Concrete Forebay	8,000 cu. ft.	.50	4,000.00		1405	.50	4,000.00		6261				
Stone Work	15,800 cu. ft.	.45	7,110.00		1405	.45	7,110.00		6261				
Brickwork (per M.)	20,000 cu. ft.	.60	12,000.00		1405	.60	12,000.00		6261				
Brick Outlet Tunnel	888,000		33,800.00		1405		4,800.00		6261				
10% for Contingencies			18,255.00		1405		9,380.00		6261				
Total: San Francisco Street Reservoir—	16,700 cu. ft.		\$16,700.00		1405-6		4,800.00		6261				
San Francisco Street Reservoir—													
Excavation	16,700 cu. ft.	.10	1,670.00		1405-6	.10	1,670.00		6261				
Concrete Bottom	16,700 cu. ft.	.20	3,340.00		1405-6	.20	3,340.00		6261				
Concrete Side Wall	33,400 cu. ft.	.40	13,360.00		1405-6	.40	13,360.00		6261				
Concrete Forebay	8,000 cu. ft.	.50	4,000.00		1405-6	.50	4,000.00		6261				
Stone Work	15,800 cu. ft.	.45	7,110.00		1405-6	.45	7,110.00		6261				
Brickwork (per M.)	20,000 cu. ft.	.60	12,000.00		1405-6	.60	12,000.00		6261				
Brick Outlet Tunnel	888,000		33,800.00		1405-6		4,800.00		6261				
10% for Contingencies			18,255.00		1405-6		9,380.00		6261				
Total: San Francisco Street Reservoir—	16,700 cu. ft.		\$16,700.00		1405-7		4,800.00		6261				
San Francisco Street Reservoir—													
Excavation	16,700 cu. ft.	.10	1,670.00		1405-7	.10	1,670.00		6261				
Concrete Bottom	16,700 cu. ft.	.20	3,340.00		1405-7	.20	3,340.00		6261				
Concrete Side Wall	33,400 cu. ft.	.40	13,360.00		1405-7	.40	13,360.00		6261				
Concrete Forebay	8,000 cu. ft.	.50	4,000.00		1405-7	.50	4,000.00		6261				
Stone Work	15,800 cu. ft.	.45	7,110.00		1405-7	.45	7,110.00		6261				
Brickwork (per M.)	20,000 cu. ft.	.60	12,000.00		1405-7	.60	12,000.00		6261				
Brick Outlet Tunnel	888,000		33,800.00		1405-7		4,800.00		6261				
10% for Contingencies			18,255.00		1405-7		9,380.00		6261				
Total: San Francisco Street Reservoir—	16,700 cu. ft.		\$16,700.00		1406		4,800.00		6261				
San Francisco Street Reservoir—													
Excavation	16,700 cu. ft.	.10	1,670.00		1406	.10	1,670.00		6261				
Concrete Bottom	16,700 cu. ft.	.20	3,340.00		1406	.20	3,340.00		6261				
Concrete Side Wall	33,400 cu. ft.	.40	13,360.00		1406	.40	13,360.00		6261				
Concrete Forebay	8,000 cu. ft.	.50	4,000.00		1406	.50	4,000.00		6261				
Stone Work	15,800 cu. ft.	.45	7,110.00		1406	.45	7,110.00		6261				
Brickwork (per M.)	20,000 cu. ft.	.60	12,000.00		1406	.60	12,000.00		6261				
Brick Outlet Tunnel	888,000		33,800.00		1406		4,800.00		6261				
10% for Contingencies			18,255.00		1406		9,380.00		6261				
Total: San Francisco Street Reservoir—	16,700 cu. ft.		\$16,700.00		1406		4,800.00		6261				
San Francisco Street Reservoir—													
Excavation	16,700 cu. ft.	.10	1,670.00		1406	.10	1,670.00		6261				
Concrete Bottom	16,700 cu. ft.	.20	3,340.00		1406	.20	3,340.00		6261				
Concrete Side Wall	33,400 cu. ft.	.40	13,360.00		1406	.40	13,360.00		6261				
Concrete Forebay	8,000 cu. ft.	.50	4,000.00		1406	.50	4,000.00		6261				
Stone Work	15,800 cu. ft.	.45	7,110.00		1406	.45	7,110.00		6261				
Brickwork (per M.)	20,000 cu. ft.	.60	12,000.00		1406	.60	12,000.00		6261				
Brick Outlet Tunnel	888,000		33,800.00		1406		4,800.00		6261				
10% for Contingencies			18,255.00		1406		9,380.00		6261				
Total: San Francisco Street Reservoir—	16,700 cu. ft.		\$16,700.00		1406		4,800.00		6261				
San Francisco Street Reservoir—													
Excavation	16,700 cu. ft.	.10	1,670.00										

other half retained its supply of water. Mr. Schussler testified that he has never dared to attempt such cleaning for fear that the wall would not withstand the pressure upon it (pp. 2806-9). Upon re-direct examination he stated that the lower fifteen feet of the wall might be used for the purpose intended, but that the upper ten feet was useless, and that the value of that unused portion was \$10,000 (p. 2996). As Mr. Schussler's testimony shows that he has never dared to use any portion of this wall and that the lake has not been cleaned for many years, it is submitted that no portion of it can be considered as presently useful; and that, therefore, the deduction at Mr. Schussler's figure of \$1,000 per foot should be \$25,000 for the entire wall.

UNIVERSITY MOUND RESERVOIR.

Mr. Higgins, who was employed on the concrete lining of this reservoir, testified:

"Q. 63. We will now take up the concrete work on the University Mound Reservoir. What work did you do on that for the Spring Valley Water Works?

"A. I was employed by the day on that work. The concrete in this reservoir was laid 4 inches thick. We lined the bottom and sides of the reservoir with concrete, the thickness of 4 inches. Imported Portland cement was used in this work. Two barrels of sand, that is, about 6 cubic feet of sand, were used to one barrel of cement. The men employed on this work worked 10 hours a day and boarded themselves.

"Q. 64. Mr. Schussler, in his direct testimony, at page 1371, says the bottom and slopes of the reservoir were '5 inches in thickness'; is that a fact?

"A. No, sir; the bottom and sides of the reservoir were only 4 inches thick.

"Q. 65. Mr. Schussler, at page 1371 of his direct testimony says, '360,000 square feet of first-class fine crushed concrete, at 15 cents per square foot, in place, inclusive of all materials, transportation and labor, cost \$54,000.' What is your estimate per superficial foot, inclusive of everything, for laying concrete in the University Mound reservoir?

"A. I have taken this work at say one day's wages for all the men that were working in there; that is the only way I could get it. I do not know how many feet there were, or anything about it. All the wages, including everything there, amounted to \$105 a day. We averaged 75 barrels of cement a day, equal to $55\frac{1}{2}$ cubic yards, at a cost of \$1.90 per cubic yard, or two and one-third cents per superficial foot; that is for labor. How I get at the average of that is that in the bottom we averaged say 95 barrels per day, in the sides, 65, making 160 barrels; taking half of that would be 80, and I have put it down at 75 barrels per day, which gives me 55 yards. We therefore have the following amounts: Labor, \$105.00; $55\frac{1}{2}$ yards of rock at \$1.50, which was a good price for delivering it, \$83.00; 75 barrels of cement and sand at, say \$4.00 a barrel, which is ample, \$300.00, making a total for one day's work, \$488.00, which we will call 11 cents per superficial foot, complete.

"There were $55\frac{1}{2}$ yards, and, 27 feet to the yard, gives you a total of 1,498 feet; multiplying that by 3, it gives 4,494 feet, which, at 11 cents per foot, will make a total of \$494.00" (pp. 25-7).

The following table comparing the units and estimates of Messrs. Schussler, Adams and Higgins is submitted, and it will be noted that the estimates of Messrs. Adams and Higgins on the above work very closely agree.

The difference between Mr. Schussler's estimate and Mr. Higgins' is \$19,800.

CONCRETE LINING—360,000 SQUARE FEET.			
	Unit Price.	Estimate.	Page.
Mr. Schussler	\$.15 per sq. ft.	\$59,400.00 (inclusive of 10%)	1371-2
Mr. Adams .....	.117 per sq. ft.	\$42,120.00	5259
Mr. Higgins .....	.11 per sq. ft.	39,600.00 (Computed on Mr. Schussler's quantities)	27

COLLEGE HILL RESERVOIR.

On the excavation of this reservoir, Mr. Schussler gave a unit of 50 cents per cubic yard (p. 1382), stating that it was partly rock excavation.

Mr. Adams adopted Mr. Schussler's figure on this excavation (p. 5259), the only difference between them being in respect to the usual 10 per cent added by Mr. Schussler.

The following extract from the Minutes of complainant, Book "B," under date of November 15, 1870, shows that this work was let by contract at 32½ cents per cubic yard:

"President reported that the contract for excavating College Hill reservoir had been let to Hancock & Kelso at the rate of 32½ per cubic yard" (p. 388).

Accepting Mr. Schussler's quantity of 32,700 cubic yards, the cost, according to contract price above given,

would be \$10,627.50, and the difference between that amount and Mr. Schussler's estimate (inclusive of 10 per cent) of \$17,985.00, would be \$7,357.50.

CLAY STREET TANK.

As against Mr. Adams' unit of 28 cents a cubic foot (p. 5260), for the concreting at this reservoir, Mr. Schussler gave a figure of 40 cents a cubic foot; his total for the 14,230 cubic feet of concrete, inclusive of 10 per cent, being \$6,226 (p. 1394 and 1396). Mr. Adams does not give his total for concrete, but, by computing it, we have a difference of \$2,241.60 as between his estimate and that of Mr. Schussler.

In connection with the construction of a reservoir by him at Astoria, Mr. Adams gave figures on concrete, which work out at 21 cents and 19 cents, respectively, for lining the slopes and bottom of the reservoir (pp. 5163-4).

CLARENDON HEIGHTS TANK.

Mr. Schussler stated that the excavation for this tank was mostly in rock, and his estimate figures out on the basis of 60 cents a cubic yard (p. 1419); which figure is adopted by Mr. Adams, the difference between them being the usual 10 per cent added by Mr. Schussler.

Extract below, from the Minutes of the Company,

Book "E," under date of May 3, 1894, shows that this excavation was let by contract at $38\frac{3}{4}$ cents per cubic yard:

On motion, duly seconded, resolved, that contract dated April 27, 1894, made by the President of this company with A. E. Buckman for excavating the foundation for the Clarendon Heights water tank at $38\frac{3}{4}$ cents per cubic yard be and the same is hereby ratified and approved" (p. 75).

The cost, according to contract price above given, for the 5,900 cubic yards would be \$2,286.25. Mr. Schussler's estimate of \$3,894 (inclusive of 10 per cent) being an increase of \$1,607.75 over cost (about 70 per cent in 10 years).

Mr. Schussler estimated the tank itself at \$6,600, while Mr. Adams gave a figure of \$6,702. The Minutes of complainant, Book "E," under date of April 5, 1894, show the cost to have been \$4,376.58:

"On motion of Mr. Beaver, seconded by Mr. Payson, resolved, that the offer of the Union Iron Works to construct and erect in place on Clarendon Heights a water tank constructed of steel plates, according to the specifications and terms set forth in its letter of March 30, 1894, the estimated cost of which is \$4,376.58, be and the same is hereby accepted" (p. 71).

A similar comparison might be made with regard to excess over cost in 10 years on this tank, as previously made on the excavation.

PUMPING PLANTS.

Mr. Adams testified as follows as to the basis for the figure given by him on the Pumping Plants (p. 4738) :

“Pumping plants (Mr. Schussler’s figures of actual cost up to 1901, except for the Burlingame plant, Lake Merced plant and Clarendon Heights plant, where his latest figures, as given in evidence in this case, are used because of additions having been made to these later plants subsequent to 1901; these figures are not my own but are here used simply to complete the estimate)—\$1,335,474.00.”

Mr. Schuyler is also shown by the following to have accepted Mr. Schussler’s figures on the Pumping Plants, although he arrived at a different figure from that given by Mr. Adams (p. 5449) :

“Pumping plants, taken from Mr. Schussler’s estimate, as I have not been furnished with a schedule and am unfamiliar with the probable cost of these plants—\$1,432,000.00.”

It being evident from the foregoing that Messrs. Adams and Schuyler did not make independent estimates on the Pumping Plants, there only remain for comparison with Mr. Schussler, the estimates of Mr. Grunsky and Mr. W. R. Eckart. The latter appeared for complainant and testified solely on Pumping Plants.

Reference to Table No. 3 will show that Mr. Grunsky’s estimates were below Mr. Schussler’s in every instance, and that his total figures were :

Report to Board of Public Works of	
January 30, 1903 (Table No. 3) . . .	\$1,227,395.00
Report to Board of Public Works of	
January 26, 1904 (Table No. 3)	1,273,547.00
Both of these figures are considerably	
above Mr. Schussler's total of (Table	
No. 3)	1,651,000.00

For the purpose of comparing Mr. Schussler's estimates with those of Mr. Eckart, and the estimates of both witnesses with original cost, Table No. 31 is here submitted. The Exhibits of both Mr. Reynolds and Mr. Wenzelburger have been used to arrive at the cost figures, and in the cases of Crystal Springs and Lake Merced Pumps, the figures are obtained by deduction of the portions gone out of use as dealt with at pages 106 and 125 of this brief.

It will be observed that Mr. Eckart's estimates on every station are below those of Mr. Schussler's, and that his total is very much less. On the Pumping Plants, as on all his other estimates, Mr. Schussler is unsupported, even by complainant's witnesses. Mr. Schussler's total figure on Pumping Plants was \$1,651,000.00, as shown on Table No. 3, but this included the Ocean View Pumps, on which no figure was given by Mr. Eckart, and which has been included by us in our list of Properties Not in Use. For these reasons the Ocean View Pumping Plant was excluded from Table No. 31.

The figure inserted in the table under cost of Black Point is undoubtedly in excess of the true amount, and

TABLE No. 31.

PUMPING PLANTS.

Comparison of Estimates of Messrs. Schussler and Eckart with Original Cost.

Plants	Mr. Schussler	Mr. Eckart.	Cost.	Authority for Cost.
Belmont	\$ 356,900.00 (p. 1271)	\$ 332,549.80 (p. 5717)	\$ 228,184.81	Mr. Reynolds, Ex. No. 113.
Millbrae	357,000.00 (p. 1283)	324,169.26 (p. 5718)	263,219.98	Mr. Reynolds, Ex. No. 113; Mr. Wenzelburger, Ex. No. 101, p. 230.
Lake Merced	357,000.00 (p. 1314)	310,312.47 (p. 5720)	251,612.34	Mr. Wenzelburger, Ex. No. 101, p. 227.
Crystal Springs.....	165,300.00 (p. 1305)	157,860.96 (p. 5719)	91,651.15	Mr. Wenzelburger, Ex. No. 101, p. 227.
Pilarcitos	35,000.00 (p. 1298)	29,576.71 (p. 5720)	24,122.57	Mr. Reynolds, Ex. No. 113.
Black Point	182,000.00 (p. 1323)	169,731.06 (p. 5721)	201,740.44	Mr. Wenzelburger, Ex. No. 101, p. 230.
Clarendon Heights...	88,800.00 (p. 1332)	74,011.45 (p. 5721)	75,113.33	Mr. Reynolds, Ex. No. 113.
5% interest during construction	78,650.00 (p. 1337)			
Totals	\$1,620,000.00	\$1,398,211.71 (p. 5721)	\$1,135,644.62	

is one of the cases where irregular charges were made in the books. It being, however, the only cost figure obtainable in the record on Black Point Pumps, it has been used by us.

Mr. Schussler's estimates, it will be noted, are \$484,-355.38 in excess of original cost, or an increase of 42 per cent.

CLARENDON HEIGHTS PUMPING STATION.

Mr. Eckart estimated the two engines at \$51,185 (p. 5721). Mr. Schussler in his figure of \$56,340 included two feed pumps, heater and details of two traveling cranes (p. 1331).

Mr. Schussler stated that the erection of pump No. 1 was begun in 1894 and finished in 1895 (p. 1717), and the following appears in the Minutes of the company of July 26, 1894 (Book "E"):

"On motion, duly seconded, it was resolved that the bid of the Union Iron Works to build the new pumping works on Seventeenth street for the Clarendon Heights reservoir for the sum of \$12,600 in accordance with the specifications be accepted" (p. 92).

According to Mr. Schussler, pump No. 2 was begun in 1899 and finished during 1900 (p. 1719). The Minutes of February 2, 1899 (Book "E"), shows that this pump cost \$17,000.

"The President submitted to the Board two bids for the erection of engines at the Clarendon Heights pump, viz:

"1st. From the Fulton Engineering Works..\$17,500.00.

"2nd. From W. T. Garratt & Co..... 17,000.00.

"It was then moved that the contract for engine at Clarendon Heights pumping station be awarded to Messrs. W. T. Garratt & Co. for the sum of \$17,000" (p. 502).

The total cost of these two engines is shown to be \$29,600, which, even allowing for the small items added by Mr. Schussler, is considerably below that gentleman's estimate of \$56,340.00.

MATTERS RELATING IN GENERAL TO THE STRUCTURAL PROPERTIES.

In the foregoing discussion we have attempted to show the discrepancies between the estimate of different witnesses and the exaggerated valuations of Mr. Schussler as to each structure in detail. We now consider in the following pages certain matters which refer to all structures in common, to wit:

- (1) Brickwork,
- (2) Contract Work,
- (3) Comparison of Primal Cost and Reduplication Value,
- (4) Unreliability of Mr. Schussler's Estimates,

(5) Other witnesses for complainant adopt Mr. Schussler's figures as a basis for their own estimates,

(6) Uncertainty of estimates due to failure to produce data as to cost,

(7) No deduction made for deterioration of complainant's properties,

(8) Conclusions as to Value of Structural Properties of Complainant.

BRICKWORK.

Mr. Schussler's figures and statements on brickwork having been shown to be so entirely at variance with the facts disclosed by the testimony of Messrs. Higgins and Carey, we deem it advisable at this point to give a short resume on this section of the work.

COST OF BRICK.

Mr. Schussler adopted a figure of \$11.00 per thousand on board cars, as the cost of the brick in his estimates, stating:

"For the selected brick that we use for this class of work where we, by paying an extra price, get the privilege of culling the brick at the kilns by paying, inclusive of an inspection of these brick by our inspector in San Jose, and inclusive of the freight from San Jose to Millbrae Station where these brick have to be delivered, per thousand, \$11.00. These are all selected brick. We have a good man there who is an expert in regard to brick, and after paying his hotel expenses

there in San Jose and his wages, it amounts to \$4.00; he can carefully inspect and select about 8,000 brick a day, which makes the expense of this inspection about 50 cents a thousand which 50 cents is included in the \$11.00 per thousand that I have just given" (pp. 751-2).

In their estimates, Messrs. Adams and Schuyler accepted this figure of \$11.00 per thousand (pp. 5077, 5106, 5524).

The testimony of Messrs. Higgins and Carey shows that the greater portion of the brick was burnt by the company on Bald Hill; in one instance they were slop made by Chinamen; in another, they were rejected by Mr. Schussler as unfit for use in certain other work. Only a small portion of the brick came from San Jose (pp. 3, 4, 8, 15, 43 and 44). This is in striking contrast to Mr. Schussler's repeated statements as to inspection and careful selection of the bricks.

To this estimate of first cost of \$11.00 per thousand, Mr. Schussler adds items for loading and unloading and for hauling to Pilarcitos or other point of destination. Reference to the detail tables on brick (Nos. 20, 21, 22, 23, 25, 26 and 28), will show how excessive Mr. Schussler's estimates of cost delivered are as compared with the contract prices and estimates given by Mr. Higgins.

On the total cost of brick per thousand, Mr. Schussler is considerably higher than any other witness, his estimates ranging from \$52 to \$66, while Messrs. Adams and Schuyler give various prices, from \$33 to \$42, and Mr. Higgins from \$30 to \$47.

On the bricks for arches at Lake Honda Reservoir, Mr. Schussler gave a figure of \$39 per thousand (p. 1353), which is somewhat more in conformity with the average figures on brickwork.

TOTAL NUMBER OF BRICK IN STRUCTURES.

Although Messrs. Adams and Schuyler differ very materially from Mr. Schussler in respect to their unit prices for brick, they accept without question Mr. Schussler's figures on the number of brick used. In the Pilarcitos Waste Weir Tunnel, Mr. Adams' testimony shows a considerable error in the number of brick as stated by Mr. Schussler (p. 5075), while Mr. Higgins' statements as to the number of brick he laid differ from Mr. Schussler's in many instances, notably, the two tunnels at Bernal Heights, where he gave 209,820 brick as against Mr. Schussler's 403,500 (p. 25).

AVERAGE NUMBER OF BRICK LAID PER MAN PER DIEM.

The detail tables on brickwork (Nos. 20 to 23, 25, 26 and 28), show that the different witnesses vary considerably on this point.

Messrs. Adams and Schuyler range from 800 to 1000, and in one instance Mr. Adams gave 1500.

Mr. Higgins, from 1000 to 2000.

While Mr. Schussler put a bricklayer's capacity at from 400 to 500.

From the above it will be evident that Mr. Schus-

sler's estimates for the labor item on brickwork must be very much higher than the other witnesses, which is confirmed by the detail tables.

Mr. Schussler is only too willing to recognize the splendid work done by his men, to whom he gives a high standing. To be consistent, should he lower their capacity for work to about a third of those men who actually did the work in the employ of a contractor?

SAND.

Mr. Schussler said:

"There is no sand fit for brickwork in that portion of San Mateo County. All our sand has to come from San Francisco County. It is delivered in barges at San Mateo wharf, or, in this case, at Millbrae wharf whenever that is in order, at the cost of \$1.60 per cubic yard. A 4-horse team hauls 2 cubic yards to a load and makes one round-trip to Pilarcitos and back. The 2 cubic yards costing at Millbrae or San Mateo \$1.60 a yard, makes a total of \$3.20. Adding to this the hauling of the two cubic yards to Pilarcitos, \$7.50, it makes the cost of 2 cubic yards of sand delivered at Pilarcitos dam \$10.70. The 2 cubic yards of sand represent 14 barrels of sand. Dividing \$10.70, the cost of 2 cubic yards, by 14, it gives 76 cents per barrel of sand delivered at Pilarcitos. As we use 5 barrels of sand for each 1,000 brick laid, the sand necessary for 1,000 brick laid is equal to 76 cents times 5, or \$3.80" (p. 753).

Mr. Schussler's memory must have been faulty in this matter, and his estimates based on a theoretical case, rather than upon actual experience, as is shown by the testimony of Higgins, Carey and Fifield.

Mr. Higgins testified as previously shown that the sand was obtained from neighboring creeks (pp. 4 and 8).

Mr. Carey testified:

"Q. 33. Did you haul any sand to Pilarcitos Valley?

"A. I hauled sand there when they put in that new gate-house at the inlet of the No. 1 Tunnel. I hauled the sand from Millbrae and made one trip a day, and then I would put on a load of wood and take it back to San Andreas. I hauled the sand used on the Locks Creek Tunnel. All the sand I hauled I got this side of the county road, about 600 feet this side of the 17-Mile House, where it stood at the time. I got the sand in the willows there. The water used to run through there and gather all the sand against the willows. The water company had a man there screening and saving it. I would go down once and sometimes twice a day. The man who screened the sand would help me to load. I had no other helper. There was no one else on the wagon" (pp. 45 and 46).

Mr. Fifield testified to the same effect as follows:

"Q. What else did you do for the Spring Valley Water Works?

"A. I also hauled sand for the Company when the Pilarcitos waste weir was being built. I received \$10 a day, supplied a four-mule team, boarded myself and took care of my animals. At first the sand used in that work was gathered from the Pilarcitos Creek, but when they gave out the Company employed me to haul sand from the creeks at Millbrae. They had a man there gathering sand from the creek beds and sifting it. I would load my wagon with 10 barrels and sometimes 12 barrels of that sand, and haul it to the Pilarcitos waste weir. I made one trip a day. There were two waste weirs constructed at the Pilarcitos dam. The first one was built with an outlet at the bottom of the dam and had to be abandoned as it was a failure. The second one was built further up the dam with an outlet about 6 feet below high-water mark" (p. 48).

CONTRACT WORK.

All through his testimony Mr. Schussler is very eloquent over the first-class construction of complainant's works and is emphatic in declaring that this is mainly due to employment of specially trained men under skilled supervision. His statement that such special construction could not have been secured except through having the work done by their own men on the day work system is repeated again and again, together with affirmations that such satisfactory results could not have been obtained if the work had been let out by contract. At one point he said: "The construction of the works
" of the Spring Valley Water Company during the past
" 40 years has been mostly carried on by day's work
" instead of contract work. We found out at an early
" date in the history of this company that work done by
" skilled and energetic workmen, if done by the day
" and under the supervision of competent and reliable
" foremen, was much more satisfactory, efficient and
" lasting, and in the end was cheaper than the same
" work if done by contract" (p. 702).

The numerous quotations from the minutes and testimony in our preceding discussion on structural works, entirely disprove Mr. Schussler's statement as above. Some of the work in which Mr. Schussler, judging from his testimony, takes most pride, was done by contract. Yet Mr. Schussler time and again emphasizes the fact that the high class of construction he required could not be secured by contract.

Mr. Schussler based his estimates on the first-class construction, which he intended should be attained by his "extraordinary good men" (p. 2076), under the supervision of himself and his assistants. Surely, as the minutes clearly prove the policy of the company to have been to let the work by contract, which policy had the recommendation and the concurrence of the chief engineer, it would have been much fairer for Mr. Schussler to have based his estimates on what was evidently considered by complainant to be the best method of construction. This policy of construction by contract was pursued all through the history of the company, a great deal of contract work being done at recent dates, and it is manifestly unfair for Mr. Schussler to change his whole policy of construction in giving his testimony and estimates.

It would be too great a task to quote the pages and pages of Mr. Schussler's praise of work, which he contemplated should be done by his own men by day's work, and to compare with them the plain statements of facts in the minutes and in Mr. Higgins' testimony that such work was let by contract. The minutes show that when contracts were let the board of directors invariably awarded the same to the lowest bidder, and this Mr. Schussler himself admitted to be the fact (pp. 1726, 2743). That this would not mean the high class of construction that Mr. Schussler so persistently lauds is sufficiently evident; and in this connection we might point out that Mr. Schussler stated that one contract was let to the lowest bidder in spite of his protest that

it would mean poor work. To quote Mr. Schussler's own words at page 1726—"although I protested that "it would be poor work he had the contract and he "put in the pipe." We might quote other cases like this, but consider the above a sufficient example.

Cross-examination shows that the laying of the Pilarcitos Pipe Line, which was done by contract, was very defective, and that the pipe was not chipped and caulked (pp. 1724-6), while Mr. Schussler in his direct testimony gives full particulars of the chipping and caulking of the pipe and the very special care exercised in the laying (p. 782).

In order to support our contention that a large proportion of the work was done by contract, we submit Table No. 32, which is a partial list of the work that the record proves to have been done by contract, together with dates on which the work was done, as follows:

TABLE No. 32.

Structures or Portions of Structures Proved by the
Record to Have Been Built by Contract.

Date of Construction.	Structure.	Authority.
1864-7	Pilarcitos Dam (excavation, puddle pit, puddle fill and embankment).....	p. 37 of testimony
1864	Pilarcitos Tunnel No. 1 (brickwork)...	p. 6 of testimony
1866-8	Lake Honda Tunnel (drifting and timbering)	Minutes, Book "B," pp. 234-5
1866-9	Pilarcitos Pipe Line (making and laying)	p. 2665 of testimony
1869	Bald Hill Tunnel (brickwork).....	p. 3 of testimony
1869	Bald Hill Tunnel (drifting).....	Minutes, Book "B," p. 333

TABLE NO. 32—(Continued.)

Date of Construction.	Structure.	Authority.
1870	College Hill Reservoir (excavation)...	Minutes, Book "B," p. 388
1870-1	Locks Creek Tunnel No. 1 (brickwork)	p. 12 of testimony
1884-5	University Mound Reservoir (excavation)	Minutes, Book "C," p. 411
1884-5	Crystal Springs Pipe Line (making and laying)	Minutes, Book "C," pp. 383-402
1885	Six Mile Tunnel (drifting, timbering and brickwork)	pp. 17-22 of testimony
1885	Bernal Heights Tunnel (drifting and timbering)	p. 23 of testimony
1887	Niles Steel Bridge.....	p. 2875 of testimony
1887-9	Alameda 36" Pipe (making, transporting and laying).....	Minutes, Book "D," pp. 130-2
1887-9	16" Submarine Pipe (making, transporting and laying).....	Minutes, Book "D," pp. 132-3
1894	Clarendon Heights Tank (excavation).	Minutes, Book "E," p. 75
1896	Lake Merced Tunnel.....	Minutes, Book "E," p. 234
1896	Haulage of brick and cement.....	Minutes, Book "E," p. 261
1897	Davis Tunnel (drifting).....	p. 2743 of testimony
1897	Colma Gulch Drainage System (embankment)	Minutes, Book "E," p. 341
1897-9	San Andreas 44" Pipe (making and laying)	pp. 2681-2694 of testimony
1899-1900	Sunol Filter Galleries (excavation)....	Minutes, Book "E," pp. 533-4, 535-6
1900	New Section of Alameda 36" Pipe (making and laying).....	Minutes, Book "F," pp. 89-90
1901-2	22" Submarine Pipe (making and laying)	pp. 2974-2995 of testimony
1902-3	Alameda 54" Pipe (making and laying)	pp. 2669-2680 of testimony

COMPARISON OF PRIMAL COST AND REDUPLICATION VALUE.

While some difference between primal cost and reduplication value may be admitted, the testimony of witnesses quoted in the preceding discussion on Structural Works shows that the original cost of certain structures, labor and materials did not differ materially from the present cost of reproduction. In many cases the present cost is said to be less than the original cost, notably by Mr. Schussler as to the drifting of tunnels. Without an extended computation it would be impossible to determine what proportion of the structural works such admissions of less or equal cost would cover. We feel justified, however, in claiming that the present cost of nearly three-quarters of the structural properties would be about the same as, or less than, the original cost for the following reasons:

The admissions of witnesses as to less or equal cost cover some of the most expensive of the structures and largest sections of the work;

The present prices of the classes of materials principally used, such as cement, brick, and plate iron for wrought iron pipe, are admitted by Mr. Schussler on many occasions to be less than those prevailing in that period when the heaviest construction took place.

The testimony of Messrs. Adams and Higgins, as will be shown later, prove that the rate paid to laborers in the earlier days was in most cases equal to, and in many cases higher than, those named by Mr. Schussler in his testimony.

In order to summarize and present in a convenient form the admissions of the witnesses outlined above, we submit the following table:

TABLE No. 33.

List of Materials and Labor, forming a part of the Structural Properties, on which the Present Cost to Reproduce is declared to be equal or less than the Primal Cost:

Items	Authority	Page of Brief.
<i>Materials:</i>		
Brick	Mr. Schussler	440
Cement	Mr. Schussler	441
Plate Iron for Wrought Iron Pipe	Mr. Schussler	219
Asphaltum, etc., for Dipping Pipe.....	Mr. Schussler	2701 (testi- mony)
<i>Labor:</i>		
Common Labor on Earth Dams	Mr. Adams	335
Making and Laying of Wrought Iron Pipe on all the Main Pipe Lines	Pipe Contracts	225, 236, 249
Brickwork in Tunnels.	Mr. Higgins	Table No. 34
Stone Masonry	Mr. Higgins	Table No. 34
<i>Structures:</i>		
Crystal Springs Dam..	Mr. Schuyler	306, 311
Pilarcitos Dam	Mr. Adams	335
San Andreas Dam.....	Mr. Adams	440
Sunol Dam	Mr. Schuyler	292-3
Pilarcitos Stone Dam..	Mr. Higgins	416
Pilarcitos Pipe Line...	Mr. Schuyler	257
Drifting of Pilarcitos Tunnels Nos. 1 and 2	Mr. Schussler	376-7
Drifting of Locks Creek Tunnel	Mr. Schussler	377
Drifting of Davis Tun- nel	Mr. Schussler	377

In support of Table No. 33 we give the following data, divided as far as possible into classes of structures:

TUNNELS:

A glance at the various tables on the Structural Works will show that the number of tunnels is very large. The expenditure on these tunnels was divided into two classes: drifting and brick or concrete lining. On the drifting, Mr. Schussler admitted that modern methods had considerably cheapened the cost. The present price of the brick itself is stated by Mr. Schussler at pages 2130-1 of his testimony to be less than at the time some of the largest structures were built. In regard to the labor portion of the cost of bricking, Table No. 34 shows that the rate of pay at the date of construction was almost the same as, and in many cases higher than, the rates named by Mr. Schussler in his testimony.

EARTH DAMS:

Mr. Adams was of the opinion that labor at the time of the building of the Pilarcitos and San Andreas Dams was higher than at the present time, and stated that it was a matter of common knowledge that in early times the ruling rates of wages for labor were very high (pp. 5054-5).

CONCRETE DAMS:

Mr. Schuyler was of the opinion that the present cost of construction of the Crystal Springs Dam should not be materially different from the original cost (pp. 5553, 5556, 5558).

Both Mr. Schussler and Mr. Schuyler state that cement is cheaper at the present time than in the early days when the heaviest construction took place (pp. 2130-1, 5558).

Mr. Schuyler considered that there would be very little difference between the present and original cost of the Sunol Dam (p. 5577).

STONE DAMS:

Mr. Higgins stated that he would be prepared to build the Pilarcitos Stone Dam at the time he testified (October 26, 1905), for the same price, namely, \$10.00 a cubic yard, that it originally (in 1870) cost to erect (pp. 11-12).

PIPE LINES:

The various contracts entered into for the making and laying of the wrought iron pipe, of which extracts have been furnished in our discussion on wrought iron pipe, amply prove that the contract prices for the earlier lines were about the same as that paid for the last pipe built in 1903-4 (Alameda 54-inch pipe), after allowing for the different size and weight of the pipe, etc. By far the lowest price paid for the making and

laying of any of the pipe was that paid on the new section of the Alameda 36-inch pipe line built in 1900 (p. 249 of this brief).

Mr. Schussler himself testified that the mechanical labor in the laying of pipe had not materially increased.

LABOR:

Mr. Schussler, in justification of the many discrepancies brought out in cross-examination between estimates made by him in previous Water Rate Investigations and those given by him in this suit, constantly assigned as the reason therefor the rise in the price of labor. As before stated, Mr. Adams was of opinion that a higher rate of wage prevailed in the earlier days, which is supported by the figures from Mr. Higgins' testimony given in Table No. 34.

Mr. Fitzgerald was of the opinion, based on data he obtained from the books of the Company, that the rate paid laborers at the present time did not differ much from that in the earlier days. He said:

"XQ. 179. Did you ascertain from that period (1865 or earlier) on down the various prices for labor?

"A. I made a number of inquiries about the prices of labor and I investigated it in several ways. My impression was, from some things I obtained from the books of the Company, that prices of labor really did not differ very much.

"XQ. 180. You mean from the present?

"A. Did not differ as much as has been represented. I took, however, for the prices of my labor, a sufficiently high sum to cover any question as to that, either one way or the other" (p. 459).

At numerous places in his testimony Mr. Schussler claimed that the cost of labor had increased from 30 to 50 per cent. That the wage of the common laborer is about the same as in the early days is proved by Table No. 34, which shows that Mr. Higgins paid the laborers, whom he employed under his contracts for brickwork and drifting, practically the same rate as complainant pays its "extraordinary good men" at the present time. The small difference between the figures of Messrs. Schussler and Higgins can doubtless be accounted for by a different price for board, both witnesses having included that item in their calculations. With those classes of labor which it is shown were never employed, but were merely paddings to Mr. Schussler's estimates, we have no concern.

TABLE No. 34.

Comparison of Cost of Labor in 1864 to 1870 with the Rate of Wage paid by Complainant in 1903-04.

	Mr. Schussler.		Mr. Higgins.		
	Rate of Wage Paid by Complainant in 1903-04.	Pilarcitos Tunnel No. 1 (Page 9; built in 1864).	San Andreas Waste Weir (Page 16; built in 1868).	Locks Creek Tunnel No. 1 (Pages 13-4; built in 1870).	Pilarcitos Stone Dam (Page 11; built in 1870).
Bricklayers	\$6.80 (pp. 771-2, 825, 1019)	\$6.20	\$7.00 and \$6.00	\$7.00	
Hod Carriers and Mortarmen	\$4.30 (pp. 772 825)	None employed	None employed	None employed	
Laborers	\$2.50 (pp. 773 825, 2078, 2268-9)	\$2.25		\$2.30	
Carpenter	\$4.00 (pp. 773 825)	None employed	None employed	None employed	
Stone Masons.....					\$7.75 and \$4.75

REDUPLICATION COST NOT MATERIALLY DIFFERENT FROM
ORIGINAL COST ACCORDING TO COMPLAINANT'S
WITNESSES.

That Mr. Adams was of the opinion that the present cost of reduplication would not materially differ from the original cost is proved by the following extracts from his testimony:

A. to Q. 271.

"Considerable prior study of this subject has led me to the conviction that while single items of cost have, in many instances, fluctuated materially, yet the sum total of the cost of building works in California, whose construction has extended over a period of the past 25 or 40 years, is not materially different from that which would result from the application of the price of materials and labor generally prevailing since 1899 and which, save for causes likely in most cases to prove ephemeral, are still, on the average, not much changed.

"MR. PARTRIDGE—Q. 272. Do you mean by that, Mr. Adams, the works built at the prices prevailing during the last 25 years would be about the same as those built since 1899? Is that the meaning of it?

"A. Yes, sir. I am, therefore, of the opinion that the probable cost of reduplicating the present structural works, after the manner in which they have been built, would not be materially different from their actual cost as hereinbefore estimated by me" (p. 4750).

And:

"XQ. 595. As I understand it there could be no material difference between Mr. Schussler's estimate of reduplication and your estimate?

"A. No, I do not think that conclusion is warranted. I do not take the prices prevailing as of 1903 or 1904 or 1905,

but the prices generally on the average prevailing since, say 1899. There is a marked difference between the two in this way, labor conditions fluctuate materially from year to year, as well as the prices of many classes of materials, and, in my method of determining value, I have not considered it the wisest course when considering value on the basis of cost of reduplication to take conditions when they happen to exist for the particular year in question as the basis for such determination, but, rather, when dealing with a property, the duplication of which would take many years, to take the general trend or average of conditions over a considerably longer period of time than that. We have no certainty that conditions which prevail, for instance, today as affecting cost of construction will prevail next year, or the year after, and when we are dealing with a question that involves the extending of construction expenditures over several years, it seems to me more logical to assume a general average of conditions rather than prevailing at any one time.

"XQ. 596. Was there some sudden jump in 1903 over the two or three years previous that would make that enormous difference between your estimate and Mr. Schussler's? For instance, let us take another case: there is the Crystal Springs system which you give at \$2,682,546 and Mr. Schussler gives at \$3,827,000; there is a difference of considerably over \$1,000,000; his figures are fully 50% greater than yours.

"A. The principal thing which would be likely to influence cost of construction has been the labor conditions about San Francisco. Those conditions have been growing very much worse since 1903 than prior thereto.

"XQ. 597. I do not think we are concerned with that. Mr. Schussler's estimate was made as conditions existed in 1903. There is no question about that at all. I think we can very well afford to eliminate any changes that have taken place since 1903. Mr. Schussler's estimate was made in 1903, and he stated as often as twenty times a day for some six months, that his estimate was made according to prices and conditions prevailing in 1903. Was there any change in 1903 over the preceding year or the year before that, 1901, that would lead to these enormous differences, and, if so, what was it?

"A. No, I do not know of changes in conditions which would make an increase of that amount or which would be sufficient alone to account for that increase. Of course, I do not know anything about the thought or view or the special knowledge that Mr. Schussler may have had in preparing his figures, which I am not in possession of, so that I do not feel scarcely capable of passing upon his estimate.

"XQ. 598. The conclusion is inevitable, is it not, that either you or Mr. Schussler must be mistaken?

"A. I do not know that I would be warranted in saying, with my present knowledge, I knew that to be absolutely true. I have not attempted any estimating at all upon the basis of prices which may have prevailed in exactly 1903, so that just what results I would have reached had I done so I do not know. I think the most I can say is that I do not personally know of modifications in conditions controlling cost of work that did come about 1903 which would have modified my own figures to the extent that differences seem to exist between Mr. Schussler's and mine" (pp. 5030-2).

Mr. Hering admitted that reduplication is very often less than original cost in the following:

"XQ. 2647. Has it not been found to be a fact, in investigations concerning the value of water supply propositions, that the cost of duplication or reproduction has been almost invariably less than the first cost owing to the fact, generally speaking, the cost of labor and materials has gone down greatly instead of rising?

"A. That has been the case very often.

"XQ. 2648. Has it not been so almost universally?

"A. No, sir.

"XQ. 2649. Do you know any other instance where it was not so?

"A. I could not point out any today. Generally, the price of iron has gone down in those works that have been valued in the last 10 or 12 years, when many of those cases came up, because 30 year franchises, which were then very common, were running out; 30 or 40 years ago there was a general building of water works all over the United States

by private companies. Since that time the price of iron has gone down. Labor has not gone down; on the average, I think, it has gone up.

"XQ. 2650. Is it not a fact that the efficiency of labor has been greatly augmented by improved machinery?

"A. Not the efficiency of labor.

"XQ. 2651. Well, let us say the amount of labor necessary to perform a given piece of work?

"A. Yes, that of course has been reduced where the labor has been substituted by machinery.

"XQ. 2652. Are you familiar with the sizes of the tunnels generally on the works of the Spring Valley Water Company?

"A. I have seen the outlets of a number of them.

"XQ. 2653. Would you say that Burleigh or other forms of diamond or power drills could be used in those tunnels profitably?

"A. They are rather small for the economical use of machinery, although I have no doubt but what machinery could be used in them.

"XQ. 2654. Would you say it would be economical to use it?

"A. That I can not say; that would have to be stated upon some actual experience that I would have to gather" (pp. 3909-10).

The foregoing discussion and figures prove beyond dispute that in the opinion of most of the witnesses little, if any, difference exists between original cost and present cost of reduplication, as applied to the majority of the structures. It is shown, however, in the preceding section of this brief on structural works that a great number of discrepancies exist between the primal cost figures and the estimates given by Mr. Schussler.

It is unfortunate that the books of the complainant company were not kept in such a manner as to indicate

the primal cost of all of its properties. Quotations given previously from Mr. Schussler's testimony show, however, that the Crystal Springs Pipe Line, and other main pipe lines were debited with expenditures on sections of pipe within the city limits, which were properly chargeable to the City Pipe System, while Crystal Springs Dam was charged with large expenditures in the purchase of lands. The book accounts covering most of the larger structures were kept in this irregular way, and it is impossible therefore to deduce from the record the actual original cost of all the structures contained in complainant's properties. The evidence contains data showing conclusively the original cost of some twenty-three (23) structures or portions thereof. The information in regard to such cost is obtained from the book accounts of complainant, as detailed in the exhibits of Messrs. Reynolds and Wenzelburger, the minute books, contracts for the making and laying of pipe, and the testimony of Mr. Higgins.

Table No. 35 has been prepared in order to present clearly the discrepancies between Mr. Schussler's estimates on structures (or portions thereof) and the actual cost.

The structures shown on this table cover approximately one-third of the total value of the structural properties of complainant.

As shown above, the evidence warrants the conclusion that the cost of reduplication of these properties in 1903-04 would not have been much, if any, in excess of the cost of original construction. Notwithstanding

that fact, Mr. Schussler's estimates of the cost of reconstruction of properties shown on this table is \$6,376,613.00, while such properties are shown to have cost originally \$4,426,629.62; making an excess over original cost of \$1,949,983.38. Or, in other words, Mr. Schussler's estimates of present value are forty-four (44%) per cent higher than the original cost of these structures.

It is fair to assume that the same proportion of excess estimate would be shown if the cost of the balance of the structural properties could be obtained, and this warrants the conclusion that about one-third of the estimated value of the structures, as given by Mr. Schussler, should be deducted in order to arrive at the original cost price. The above figures furnish an additional reason why Mr. Schussler's estimates should be disregarded as unreliable.

TABLE No. 35.

Discrepancies between Mr. Schussler's Estimates of Present Value of the Structural Properties of Complainant and Cost Prices obtained from the Account Books, Minutes, Contracts and Testimony of Contractors, detailed in the discussion thereon in a prior section of this brief.

Structure or Portion of Structure.	Mr. Schussler.	Page or Table in This Brief.	Amount.	Source of Information.	Page or Table in This Brief.	Difference between Mr. Schussler's Estimate and Cost Price.
Alameda 36-inch Pipe Line (Plate iron; laying of Pipe).....	\$ 738,747.00	Table No. 7	\$ 428,480.00	Computation	Table No. 7	\$ 300,267.00
Crystal Springs Pipe Line (Plate iron).....	463,673.00	Table No. 7	302,941.00	Computation	Table No. 7	160,732.00
Pilarcitos Pipe Line (Plate iron).....	151,271.00	Table No. 7	84,714.00	Computation	Table No. 7	66,557.00
San Andreas Pipe Line (Plate iron; making and laying of pipe).....	422,641.00	Table No. 7	261,190.00	Computation	Table No. 7	161,451.00
22-inch Submarine Pipe (making and laying)....	182,380.00	(p. 263)	148,240.00	Pipe Contract	(p. 263)	34,140.00
Sunol Filter Galleries, Dam and Aqueduct.....	872,000.00	Table No. 3	714,541.37	Mr. Reynolds	(p. 291)	157,458.63
Pleasanton Improvements	99,700.00	Table No. 3	82,443.05	Mr. Reynolds	(pp. 294-5)	17,256.95
Six Mile Tunnel.....	49,800.00	Table No. 16	23,928.95	Mr. Higgins	Table No. 16	25,871.05
South Lake Merced Drainage System.....	294,300.00	(p. 321)	176,914.00	Mr. Schussler	(p. 321)	87,386.00
Pilarcitos Dam, Waste Weir and Gate House....	441,400.00	Table No. 3	335,749.36	Mr. Wenzelburger	(pp. 343-4)	105,650.64
Pilarcitos Upper Dam.....	39,000.00	Table No. 3	31,376.40	Mr. Wenzelburger	(p. 361)	7,623.60
Pilarcitos Slide Flume.....	20,000.00	Table No. 3	13,525.88	Mr. Wenzelburger	(p. 366)	6,474.12
Pilarcitos Tunnel No. 1; Brickwork.....	23,631.00	Table No. 21	12,220.00	Mr. Higgins	Table No. 21	11,411.00
Lake Honda Tunnel and Tanks.....	70,560.00	(p. 384)	52,372.12	Mr. Wenzelburger	(p. 384)	18,187.88
San Andreas Dam, Waste Weir and Forebays...	682,500.00	(p. 385)	461,460.46	Mr. Wenzelburger	(p. 386)	221,039.54
Bald Hill Tunnel, Brickwork.....	36,603.00	Table No. 26	17,469.00	Mr. Higgins	Table No. 26	19,134.00
Bald Hill Tunnel, Drifting.....	27,918.00	(p. 399)	32,970.00	Minutes	(p. 399)	3,948.00
Davis Tunnel	41,500.00	Table No. 3	32,287.08	Messrs. Reynolds and Wenzelburger	(p. 402)	9,212.92
Locks Creek Tunnel No. 1, Brickwork.....	51,110.00	Table No. 28	30,272.00	Mr. Higgins	Table No. 28	20,838.00
University Mound Reservoir, Concrete Lining....	59,400.00	(p. 421)	39,600.00	Mr. Higgins	(p. 421)	19,800.00
College Hill Reservoir, Rock Excavation.....	17,985.00	(p. 422)	10,627.50	Minutes	(p. 422)	7,357.50
Clarendon Heights Tank; Excavation and Tank...	10,494.00	(p. 423)	6,662.83	Minutes	(p. 423)	3,831.17
Pumping Plants	1,620,000.00	Table No. 31	1,135,644.62	Messrs. Reynolds and Wenzelburger	Table No. 31	484,355.38
	\$6,376,613.00		\$4,426,629.62			\$1,949,983.38

UNRELIABILITY OF MR. SCHUSSLER'S ESTIMATES.

Mr. Schussler is not only more intimately acquainted with the construction and operation of complainant's plant than any other living person, but he has exercised a continuous management of the engineering department of complainant much longer in duration than is usually enjoyed by officials of this character. For thirty-nine years and ten months up to the time of the commencement of his testimony (August 1, 1904), he had been connected with the engineering department of the complainant company, and for more than thirty-eight years of that time he had been its chief and directing engineer. Directors and other officials have changed but he has retained his position as the controlling mind which has planned and executed the development and operation of complainant's properties. This has been his life's work, and he is justly proud of the result. His continuous and prolonged tenure of office attests the satisfaction of the stockholders and directors with his services. No one can inspect the properties of complainant without being impressed with their successful adaptability to the purposes for which they are used. Mr. Schussler's testimony is not wanting in praise of complainant's properties. Defendants frankly concede a considerable portion of what is there claimed, and heartily accord to Mr. Schussler the credit for much of it.

An engineer so circumstanced should have been the

most valuable witness in this case. With his unusual sources of information he could have enlightened the Court upon the perplexing questions here involved. A study of this record compels us to the conclusion, however, that his estimates of the value of complainant's properties are neither trustworthy nor convincing, and cannot be relied upon by the Court as a basis for a finding of value. His estimate of the value of lands, water rights and rights of way, and the methods by which the same was obtained are elsewhere discussed. We now refer to his estimates of the value of the structural properties, and some individual cases of other properties, and briefly indicate the reasons which have compelled the above conclusion as to such estimates.

First: The record discloses estimates made by Mr. Schussler in reports to the Board of Supervisors in the matter of its investigations prior to fixing of water rates in the year 1901 and in February, 1904, but a few months before his evidence was given in this case from August to December, 1904. The discrepancies between some of these estimates and his testimony in this case are so great as entirely to destroy the weight of such testimony. Mr. Schussler explains these prior estimates as follows:

"That was for the purpose of water rate fixing. There was no question then of establishing the value in as thorough a manner as we are attempting to do now. The main thing then was to maintain the value of the works for water rate purposes up to the amount of money represented by the stocks, the bonds and the debt" (Ans. to XQ. 3377, p. 2336).

This is very weak. All the officials of complainant realized that the greater the value of their plant proved to the Supervisors the greater would be the income allowed. It is not probable, therefore, that, when the chief engineer was asked his opinion as to the value of any portion of the properties, his estimate fell short of the full maximum value which he considered justified. Notwithstanding the sworn statements of value submitted to the Supervisors, Mr. Schussler has increased his estimates given in evidence in this case to a degree which the brief time intervening does not justify. This is shown by the comparisons in Table No. 36, following:

TABLE No. 36.

Comparison of Mr. Schussler's Estimates in this Suit with those given by him in Water Rate Investigations previously:

Structure.	Estimates in this Suit, August to December, 1904.	Estimates of February, 1904.	Estimates of 1901.
San Andreas Dam....	\$623,000.00 (pp. 878, 2182)	\$567,000.00 (p.2504)	\$445,000.00 (pp.2476, 2505)
San Andreas Forebay.	59,500.00 (p.878)	54,000.00 (p.2505)	
Bald Hill Tunnel.....	64,500.00 (p.878)	62,000.00 (p.2505)	
San Andreas Pipe Line	628,000.00 (p.878)	600,000.00 (p.2505)	52,000.00 (pp.2476, 2505)
Locks Creek Aqueduct	419,000.00 (p.1048)	376,700.00 (p.2498)	550,000.00 (pp.2476, 2506)
Lake Merced Drain- age System	343,000.00 (p.1262)	260,000.00 (p.2514)	

TABLE NO. 36—(Continued.)

Structure.	Estimates in this Suit, August to December, 1904.	Estimates of February, 1904.	Estimates of 1901.
Pilarcitos Dam and Waste Weir	416,600.00 (pp. 806, 2182)	427,000.00 (p. 2500)	340,000.00 (p. 2470)
Lake Honda Tunnel..	62,000.00 (p. 806)	56,000.00 (p. 2504)	48,000.00 (p. 2474)
Ocean House Flume..	15,750.00 (p. 806)	12,000.00 (p. 2504)	9,000.00 (p. 2474)
Pilarcitos Side Flume.	20,000.00 (p. 806)	18,000.00 (p. 2501)	10,000.00 (p. 2501)
Upper Pilarcitos Dam	39,000.00 (p. 806)	38,000.00 (p. 2501)	30,000.00 (p. 2472)
Upper Crystal Springs Dam	329,000.00 (pp. 1004, 2182)		265,000.00 (p. 2478)
Crystal Springs Pump- ing Station	165,300.00 (p. 1337)	140,000.00 (p. 2515)	91,610.49 (p. 2243)
Belmont Pumping Sta- tion	356,900.00 (p. 1337)	334,000.00 (p. 2514)	
Millbrae Pumping Sta- tion	357,000.00 (p. 1337)	300,000.00 (p. 2514)	
Lake Merced Pump- ing Station	357,000.00 (p. 1337)	310,000.00 (p. 2515)	
Pilarcitos Pumping Station	35,000.00 (p. 1337)	33,000.00 (p. 2515)	
Clarendon Heights Pumping Station...	88,800.00 (p. 1337)	80,000.00 (p. 2516)	
Niles Dam and Aque- duct	128,000.00 (p. 1211)	93,000.00 (p. 2509)	
Pleasanton Improve- ments	99,700.00 (p. 1211)	89,700.00 (p. 2507)	

Second: Defendants produced four witnesses who participated in the construction of portions of complainant's properties in San Mateo County—Messrs. Emery, Higgins, Carey and Fifield. Their testimony, together with the records of complainant as contained in its minute and account books, contains the only basis of comparison of actual cost of construction with engineer's estimates, which the record furnishes. These witnesses were examined as to the actual cost of certain portions of the work, concerning which Mr. Schussler had previously testified as to the manner of construction and cost of reduplication. The discrepancies between the two sets of figures, which are shown in Table No. 35, and are discussed in the preceding pages, are altogether too great to be accounted for by the difference in dates to which the two apply.

It is to be regretted that additional witnesses who had personal information of the cost and manner of the construction of complainant's properties were not produced. They could have been much more easily found by complainant than by defendants. But it is submitted that the testimony of these four witnesses is sufficient to establish:

I. That Mr. Schussler's estimates of the cost of construction of some of complainant's structural properties are very much exaggerated, and cannot be relied upon as a basis of valuation.

II. That, in the absence of a contrary showing, the discrepancies which have been proved as to some of the works must be presumed to exist as to others; and

therefore that none of Mr. Schussler's figures can be accepted or followed.

III. That the estimates of all the witnesses as to cost of construction of the structural works are much higher than the actual cost of the works warrants.

IV. That Mr. Schussler's testimony as to the character of materials and workmanship which went into the structures and also his statements as to quantities is disproved and must be disregarded.

Third: In the case of some estimates comparisons are furnished by records of contracts and purchase prices disclosed by the minutes and account books of the company. In all cases in which such information is obtainable, the differences between the actual record and the estimates and statements of the chief engineer are so marked as to be absolutely unexplainable, as is shown by the tables and quotations from minutes and testimony given in the preceding pages.

Numerous discrepancies between cost price as given in the minutes and account books are dealt with in our discussion on Structural Works, the principle of which are detailed in Table No. 35.

Fourth: Mr. Schussler's valuations are disproved by the preponderance of the testimony of the other witnesses. That his figures are very greatly in excess of those given by complainant's best informed witnesses—Messrs. Adams and Schuyler—is proved by columns Nos. 31 to 35 of Table No. 3, which show that the average of Messrs. Adams' and Schuyler's estimates on

all structures amounted to \$16,993,625.00, while Mr. Schussler's total figure for the same structures was \$19,317,000.00 (being less his estimate on meters). The excess of Mr. Schussler's estimates over the average of Messrs. Adams and Schuyler is \$2,323,375.00.

As the estimates of the other witnesses who gave details are, in nearly all instances, less than those above mentioned, Mr. Schussler's estimates stand alone without support from any other witness. It is submitted that they are not only unsupported but absolutely disproved by the discrepancies above noted.

Fifth: Mr. Schussler's answers to questions propounded on cross-examination are frequently so evasive and apparently insincere as not to inspire confidence. For example:

In attempting to justify his estimate in 1901 for lands, water rights and rights of way of \$6,400,000, as compared with his present estimate of \$29,000,000 for the same properties, he enters into a lengthy discussion as to the reasons why he did not consider it advisable to give the full value of the properties to the Supervisors (pp. 2307-2311). He is then asked:

"XQ. 3289. You stated at the end of your testimony, in answer to the question, 'Q. Are those the present values? A. Yes'?

"A. They are the present values, but I did not say that was all they were worth. A man may state a thing is worth \$100—that does not say it is not worth \$150. If it is worth \$150 it is certainly worth \$100" (p. 2311).

Such testimony needs no comment.

Sixth: Mr. Schussler's testimony discloses a remarkable absence of knowledge with regard to the cost of sundry properties of complainant. His long connection with the Company enabled him to have access to all of its records. He also alleges ignorance as to some of the details of recent constructions concerning which it would seem that an engineer of his ability and thoroughness should have been advised. This consistent avoidance of any knowledge of cost prices, particularly with regard to structures recently built, greatly weakens the value of his estimates. Nearly, if not all, of the other witnesses state that they would have preferred to have used cost prices as a basis of their estimates if they had been available. We have proved that such figures were available to Mr. Schussler in many instances. The wide difference between such figures and his estimates probably furnishes the reason why they were not used.

As instances of his professed ignorance on these matters, the following are cited:

He stated that he did not know the actual cost of laying the Alameda 36-Inch Pipe Line (p. 2886); nor could he give the size of the trench for this pipe, nor the character of the earth through which the trench was dug (pp. 2886-7); nor did he know the cost of the rights of way on this pipe line (p. 2887); nor the actual cost of the Vandervoort Crossing (p. 2824); nor could he state the cost of the Laguna Creek Ditch (p. 2824); nor did he know the cost of the Laguna Creek Diverting Dam (p. 2824); nor of the Filter Galleries at Sunol

(pp. 2858-9) ; nor the cost of the pipe in the City Distributing System (p. 2962) ; nor the cost of laying pipe on Lobos avenue (p. 2603) ; nor did he know the percentage of deterioration which takes place in the City Pipe System (p. 2969) ; nor could he state exactly what his estimate to the Board of Supervisors of February, 1904, on Clay Street Tank included (p. 2517) ; nor did he know whether his estimate to the Board of Supervisors of February, 1904, on the University Mound Reservoir included the buildings or the fences around it (p. 2516) ; nor did he know the cost of the Crystal Springs Dam (p. 2763) ; nor of the excavation for such dam (pp. 2751-2) ; nor did he know the character of the earth through which the trenches for the Crystal Springs Pipe Line were dug (p. 2777) ; nor the character of rock through which the tunnels on the Crystal Springs Pipe Line were drifted (pp. 2776-7) ; nor did he remember how much of the Pilarcitos Dam was built by contract (p. 2045) ; nor had he any record of the terms of such contract (p. 2057) ; nor did he know what had become of it (p. 2057) ; nor did he have any details of the number of cubic yards removed in the construction of the Pilarcitos Stone Dam Flume, nor the character of grading therefor (p. 2462) ; nor did he know when the upper Pilarcitos Dam was built (p. 1696) ; nor the cost of labor, lumber and iron pipe at the time of the laying of the original Pilarcitos Pipe Line (p. 2034) ; nor the cost of the 24-Inch Cast Iron Pilarcitos Pipe, nor the size of the trench in which it was laid, nor the number of blow-offs per mile, nor the number of air cocks or valves, nor the character of

the earth excavated for this pipe, nor the cost of laying the same per foot (pp. 2652-3); nor did he know the cost of the Pilarcitos Side Flume, nor how much it would cost now (p. 2133); nor did he know the average cost of the rights of way on the San Andreas Pipe Line (p. 2898); nor remember the details of this Pipe Line construction (p. 2747); nor the cost of the wrought iron pipe in the Flume and Pipe Feeder on the San Andreas System (p. 2741); nor the cost of the Flume portion of this feeder, nor the size of the grading done (pp. 2738-9); nor did he have original data on Locks Creek Flume, nor could he say where such data was (p. 2741); nor did he know why he omitted the Ocean View Pumps from his estimates to the Board of Supervisors in February, 1904 (p. 2515); nor how many Worthington meters are in use at the present time (p. 2949); nor the cost of the telephone lines (pp. 2968-9); nor the cost of the roads built by complainant (p. 2968); nor how many miles of fence the company has (p. 2968); nor did he know whether the work on complainant's tunnels could be done cheaper by hand than by air-drills (p. 2437-8); nor whether in the construction of earth dams it would be cheaper to break up the clay by plowing than by hand labor (pp. 2085-6); nor whether the mixing of gravel with clay would be harmful in the construction of clay dams (p. 2093); nor did he know if cement manufactured in California was as good as that made in England or Germany (p. 2125); nor whether Californian cement had been used lately in the building of dams or on Government contracts (p. 2126).

OTHER WITNESSES FOR COMPLAINANT ADOPT MR. SCHUSSLER'S FIGURES AS A BASIS FOR THEIR OWN ESTIMATES.

In our discussion and tables on the Structural Works we have shown that all of the witnesses called by complainant adopted Mr. Schussler's figures as to quantities and in certain cases his unit prices also. The extent to which this practice has been carried by the different witnesses is varied according to their respective opportunities for personal knowledge of the facts. They have all found, however, that they lacked some necessary information and in order to complete their estimates have had recourse to Mr. Schussler's testimony, or to him personally, to supply the deficiency.

We have cited numbers of cases where Mr. Schussler's quantities were in error and his statements unfounded, proving same by extracts from the minutes and from Mr. Higgins' testimony.

In many places Mr. Schussler stated the cost of certain structures or portions thereof, which in his position he was unquestionably able to supply. It has been shown, however, that in the majority of cases these figures were entirely at variance with the facts as disclosed by the minutes and account books of complainant. Messrs. Adams and Schuyler are on record as having accepted Mr. Schussler's figures on cost whenever they found declarations to that effect in his testimony. It is clear, therefore, that on this point they were misled and their estimates stand in error to the

extent of the discrepancies. Mr. Schussler was very prone to start a discussion with the statement that he was giving the cost of the work, to cover many pages of testimony with praise of construction, etc., and to finish up with a figure, which only very close reading proved to be the reduplication cost. Messrs. Adams and Schuyler evidently accepted many of these figures in good faith as cost figures and admitted so in their cross-examination.

On the brick work it is rather the exception than the rule to find any of Mr. Schussler's statements agreeing with the testimony of the contractor; the latter's testimony, however, is proved in many important instances by extracts from the minutes. Mr. Schussler conceived classes of labor which were never employed; special purchasing and selection of brick which in the majority of cases were not undertaken; and various items of expenditure which only existed on paper in his estimates. Messrs. Adams and Schuyler accepted Mr. Schussler's statements as to the number of brick used, which has been shown to be considerably in excess of the true quantity, special purchasing of brick, sand, etc., and to this extent these witnesses must be considered to have been misled and their estimates inflated.

Mr. Schussler's estimates and statements having been proved to be unreliable and untrustworthy, the same conclusion must apply to the estimates of the other witnesses to the extent that they are based upon his figures. To give a summary showing the extent to which the other witnesses accepted Mr. Schussler's fig-

ures would serve no useful purpose, as our discussion on structural works proves that they accepted Mr. Schussler's figures all through on the quantities. In a number of cases Mr. Schussler's quantities are proved to have been in error, and had data been available in the record, could doubtless have been shown to have been so in many more instances, and therefore the extent to which the estimates of the other witnesses are subject to deduction is very considerable.

UNCERTAINTY OF ESTIMATES DUE TO FAILURE TO PRODUCE DATA AS TO COST.

The estimates of Complainant's witnesses as to the value of lands, water rights and rights of way as well as of structural works are based on judgment and are largely speculative. Most of the witnesses state that they would have preferred to have used the actual cost as a basis for their estimates if data thereon had been available. They were informed that such cost figures were not obtainable.

Mr. Dockweiler showed, however, that the company could have produced this information, had it so desired. He said:

"I have asked for details from the office of the engineer, relative to costs, and was always informed that it was impos-

sible to determine cost. I have within the past two weeks been accorded the privilege of inspecting original vouchers of the company in the pipe yard, in this city, and I now make this statement, that the company has data sufficient to enable it to supply the exact cost of each and every structure that now comprises its works. That it not only has the vouchers, but it has the correspondence and the letters, even communications of a most trivial nature, that would be reported to an engineer merely for his guidance and which would ordinarily be subsequently thrown in the waste basket, are preserved. The data is sufficient from the vouchers that I have examined and they seem to be all there as there are boxes labelled with the years and the bundles of vouchers that would enable the company to determine the following facts: It can classify the amount of material which went into each structure and the prices paid for such material; it can ascertain the amount of labor that went into each structure, the rate of wages and the classification of the labor that was necessary, and with this data it is in a position to determine the elements of cost, and, if it were necessary, to determine the present cost of construction in the manner in which the same was built, by analyzing the items which comprise the total charges made against a structure. The determination can be made, as follows: The original structure required so much labor at such a rate of wage, it required so much material, the unit prices for which were such; the present prices for the similar kind of labor can be determined therefrom; the present cost of building the structures in the manner in which they were then done can be determined as nearly as mathematics can determine. I am, therefore, in a position to state that, from my investigations into the affairs of the Spring Valley Water Company, I am of the opinion that the original cost of the various structures of that company could be readily determined from data at the present time in its possession. I am also firmly of the opinion that, from data at present in the possession of the corporation, the present cost of reproducing the works in the manner in which they were built could be determined with accuracy, and without the necessity of estimating the amount of work done and materials used. I am further convinced that this is so from

the fact that I have seen a pay roll of one of the earliest pipe lines built, and furthermore, that the minutes of the corporation show that there were minute and detailed reports made not only during but after the construction of these works. The officers of the company, even in the earliest days when things might be expected to be run in a loose and disjointed manner, preserved records so as to enable a thorough understanding of every move and every expenditure that was entered into. The early books are most minute and set forth in great detail the doings of the company, and the bundles of letters from the various employees, in the shape of reports to the secretary and to the president, enable the filling out of any piece of information where the direct data might be incomplete. That any data is incomplete is not my belief, as, reasoning from analogy, if minute scraps of paper, some of which are in the shape of complaints from water rate payers, were preserved, information in the shape of reports from the officers and employees of the company would certainly be preserved, especially if they were reports on the expenditure of money. Furthermore, a great many bills that have been paid give the details of the work for which they were paid. I have only learned that these details are in the possession of the company within the past two weeks, as all my requests for such data during the last two years from the Chief Engineer were met with the statement that it was impossible to arrive at cost. I have investigated the cost of the Pilarcitos dam—and am enabled from my investigation—this having been made from the cash books of the company and such vouchers as I examined—to state that every item of expenditure can be classified and arranged so that the original cost of the structure can be determined” (pp. 508-10).

Notwithstanding this showing Mr. Schussler testified:

“XQ. 4433. Do I understand now that you say it is impossible for you to give us from any data in your possession or in the possession of your office the actual cost of the specific works which you have mentioned in your testimony?

"MR. KELLOGG—Mr. Partridge, when you say 'your office' you mean the engineer's office?

"MR. PARTRIDGE—Yes, the engineer's office.

"A. It is impossible because I have no account of costs. I have none except in the last few years when we have come approximately to it.

"XQ. 4434. Who can give that directly?

"A. That I do not know, but I believe that the secretary, with the assistance of the experts the city has employed, may come pretty near to it. . . . For my part I could not do it at all because I am not an accountant and have no records there at all" (pp. 2608-9).

And Mr. Schuyler was advised by Mr. Schussler that it was impossible to obtain the cost of the systems from the books:

"XQ. 233. Could you not have derived the actual cost of this system from the books without making any estimates of it?

"A. No, sir.

"XQ. 234. Is it impossible to get the cost of this Pilarcitos or these other systems from the books of this corporation?

"A. I was so informed, yes sir.

"XQ. 235. Then, the many statements that have been presented to the Board of Supervisors, purporting to be the cost of those structures, are not justified by the books; is that so?

"A. I do not know.

"XQ. 236. You have been informed, however, that it is impossible to determine from the books the cost of those structures?

"A. That was my understanding, that it was impossible to get at a complete statement of the cost of all of the works.

"XQ. 237. Who informed you of that?

"A. I obtained that information in the office; I have forgotten just from whom.

"XQ. 238. Can you not remember who told you?

"A. I think Mr. Schussler" (pp. 5511-12).

And again Mr. Schuyler said:

"XQ. 834. If it is true that you can determine from the book record the cost of certain of those structures, then, would you not consider that the book record was superior to either yourself or Mr. Adams' estimate?

"A. I certainly should prefer that book record. As I stated in my direct-examination, I would have preferred to have obtained all of my figures of cost from the actual book record.

"XQ. 835. You never have examined the minutes of the directors of the corporation, have you?

"A. No, sir.

"XQ. 836. Do you know whether the minutes contain any record of contracts and reports which show what certain pieces of work actually cost?

"A. No, I do not.

"XQ. 837. Did you make any endeavor to find out whether that was so or not, other than what Mr. Schussler told you?

"A. No, sir" (p. 5619).

Mr. Adams said:

"The probable investment in most of the structures I have determined by estimating, using the schedule of materials and labor prepared by Mr. Schussler and given in evidence, and applying to them such cost prices as seem to me proper in view of the manner in which the work has been done. No detail schedules are available as to pumping plants and the submerged pipes. I have been able, therefore, only to deal with these items in a general way in forming an idea of their probable cost" (p. 4737).

And:

"For use later in determining the degree of prudence which has characterized the building of the various water works structures it would have been desirable that the

total investment be segregated as to—(a): real estate and water rights; and, (b): structural works. It has been impossible, however, to derive this information with sufficient completeness to warrant the attempt. No attempt, has, therefore, been made herein to determine the cost to the company in detail of all its real estate, easements and water rights” (p. 4737).

And again Mr. Adams said:

“Concerning the real estate and water rights purchased I am advised that no complete record of the prices paid is obtainable, no separate account having been kept by the San Francisco Water Company, nor during the early years of its successor, the Spring Valley Water Works.

. . . It appears also that no complete record exists of the exact cost of all the various structural features of the plant, but, in the pamphlet prepared by Mr. H. Schussler, the Chief Engineer of the company, entitled ‘Relating to water rates for the fiscal year 1901-02,’ on pages 26 to 32 inclusively, appears an appraisalment by him of the value at that time of the various important structural works. In the evidence as given in this case it is stated that these figures were taken from the company’s book record of actual cost.” were taken from the company’s book record of actual cost” (pp. 4740-41).

And again:

“A. to XQ. 695. You understand that in the preparation of any estimate where we are dealing, in almost every item, with questions involving personal judgment, it can not be claimed for the art of estimating such conditions that anything like perfection can be achieved. I most willingly concede that in any estimate which I may prepare as to the probable cost of any large structure representing so many different classes of work and in which so many different items enter, that the actual achievement may vary materially in many items either one way or the other from my judgment

as to what, under those general conditions given, it would probably cost. We can not reach any positive or exact conclusions by the process of estimating" (p. 5055).

Mr. Grunsky said:

"Q. 14. Mr. Grunsky, do you consider the appraisalment as made by you in January, 1903, a reasonable one?

"A. I do, but, as just stated, an appraisalment of this character is intended to be used as a guide in determining whether the amount of money that is claimed to be invested in properties and works that are in actual use is reasonable. In making the appraisalment I should have preferred to be guided by the actual cost to the company of its lands and works, but satisfactory data of this kind were not available, and appraisalments were made independent of actual cost, except where otherwise noted in the appraisalment" (p. 176).

Mr. Hering, in response to an inquiry as to whether or not an engineer should preserve data of cost prices said (p. 3747):

"A. I should imagine that he should keep an account of the expenditure of every piece of work; just how much in detail that is done would depend upon the individual, as to whether he desired to do it, or whether he thought it was necessary to do it. If he had time I should imagine that every good engineer would want to keep account, in as great detail as possible, of his work. We all like to do that but, as it costs money to do it, we are often not able to do it."

Mr. Stearns testified:

"A. to XQ. 621. I have so little knowledge of the prices of items of work in California that I did not attempt to make an estimate of the cost of the different features of the work in any exact way because I knew I had not the information with which to do it.

"MR. PARTRIDGE—XQ. 622. Then, your statement that the works are economically built was not based upon any exact calculation?

"A. It was based upon looking at the design and reading a description of the works, and it seemed to me that works carried out in that way were as economically built as it is practicable to build them.

"XQ. 624. By economical do you mean that the amount of money expended upon them was as small as should be?

"A. I related only to the design and methods of doing the work; I do not know how many dollars were actually spent upon them" (pp. 4376-77).

And again:

"XQ. 1114. You were asked by Mr. Kellogg, in your opinion, if you saw anything in the construction that might be regarded as an extravagant or useless expenditure of money in the initial cost and you answered that you did not. You referred to the method of construction and not to the amount of money actually expended, did you not?

"A. I did.

"XQ. 1115. And that same answer would apply to all of your statements regarding extravagance or economy of construction?

"A. Yes. I know nothing as to the amount of money that was actually paid" (p. 4486).

Mr. Fitzgerald testified as to his inability to find details of the payment for the Calaveras properties:

"XQ. 126. What doubt did you have as to the propriety of those purchases, and state the reasons for such doubts?

"A. The very first item in the schedule is 'Purchase from the Alameda Water Company, Calaveras County, Vallejo's Mills and water rights, \$1,000,000'; I could not find the details of that expenditure of a million dollars, and if I could either have been supplied with that, or could now be sup-

plied with that by the company, I should be enabled to form a judgment as to whether it was a proper expenditure or not.

"XQ. 127. Did you include it?

"A. I included it, yes sir." (p. 452).

The failure of Complainant to produce evidence of the cost of the different portions of its plant deprives the uncertain and indefinite estimates of its witnesses of such weight as might otherwise be accorded to them as evidence.

It is a well established rule of evidence that if a party fails to produce the best competent evidence within his possession, such other evidence as he may attempt to produce in its stead should be subjected to grave scrutiny and doubt. As is said in *Bagley vs. McMickel*, 9 Cal., 446:

"For if a party is in possession of this evidence and withholds it, and seeks to substitute inferior evidence in its place, the presumption naturally arises that the better evidence is withheld for fraudulent purposes which its production would expose and defeat. When it appears that this better evidence has been voluntarily and deliberately destroyed, the same presumption arises, and unless met and overcome by a full explanation of the circumstances, it becomes conclusive of a fraudulent design, and secondary or inferior evidence is rejected."

The above rule is carried into the Code of Civil Procedure of California, which includes among a list of disputable presumptions, "That evidence wilfully suppressed would be adverse if produced," and "That higher evidence would be adverse from inferior being produced." (Sec. 1963, Subs. 5 and 6.)

In this connection reference is again made to the *missing cash books* of complainant, which are referred to by Mr. Wenzelburger. The absence of these books is unexplained except by an attempt of different officials of the complainant to place the responsibility upon each other. It is strange indeed that these books, covering the critical period of the complainant's corporate existence, during which, it appears from the minutes, extraordinary large expenditures were made for unusual purposes, should be missing with no explanation of their loss. It is submitted that in view of the character of the entries covered by these books, and the want of any explanation of their disappearance, we are warranted in applying to complainant the maxim, "*Omnia praesumuntur in odium spoileris.*"

The application of this maxim as a rule of evidence is discussed at length in a note to *Hay vs. Peterson*, 34 L. R. A., 581. It is there said (p. 583): "The party
"who, having it in his power to produce the best evi-
"dence, voluntarily suppresses or destroys it, creates
"every presumption against himself as a despoiler."

NO DEDUCTION MADE FOR DETERIORATION OF COMPLAINANT'S PROPERTIES.

Complainant is emphatic in its demand for an extra allowance in the rates to cover the alleged annual depreciation of its plant; but no one of its witnesses deducts anything from the cost of construction of a new plant in his estimates. Some of the structural properties are from thirty to forty years old. In a subsequent portion of this brief, we contend that the depreciation in such properties has been reduced to a minimum on account of constant replacements made from the maintenance fund. It cannot be said, however, that no depreciation has taken place. A plant thirty to forty years old is certainly not as valuable as a new plant. And yet complainant's experts value it as if it were. The amount to be deducted for such depreciation nowhere appears; but it is evident that this matter must be taken into consideration in weighing the conflicting estimates of the expert witnesses. Quotations from the testimony on this matter are given in the subsequent chapter ("Depreciation") above referred to.

The necessity of making the reduction here contended for is clearly recognized by the Supreme Court in the recent case of *Knoxville vs. Knoxville Water Co.*, 29 Sup Ct. Rep., 150.

CONCLUSIONS AS TO VALUE OF STRUCTURAL PROPERTIES OF COMPLAINANT.

In considering the value of complainant's structural works, defendants submit that there are but four witnesses whose estimates should be considered. Mr. Schussler's figures are disregarded for the reasons stated in the preceding pages. Messrs. Stearns and Duryea based their estimates entirely on an assumed substitutional system. Mr. Hering's figures are not given with sufficient detail to permit of comparisons or to carry conviction. Mr. Fitzgerald's estimates are based upon cost prices and the structural properties are not segregated from the lands and water rights.

This leaves the estimates of two witnesses for complainant and two for defendants. The total estimates of these witnesses on the structural properties together with stock on hand, meters and telephones, are as follows:

FOR COMPLAINANT:

MR. ADAMS—

Table No. 3.....	\$16,062,445
Meters	160,000
Stock on hand.....	219,098
	<hr/>
	\$16,441,543.00

MR. SCHUYLER—

Table No. 3.....	17,924,806.00
------------------	---------------

AVERAGE OF MESSRS.

ADAMS & SCHUY-

LER	\$17,183,174.50
-----------	-----------------

FOR DEFENDANTS:

MR. GRUNSKY (1904)—

Table No. 3.....	\$15,076,744
------------------	--------------

Stock on hand.....	185,500
--------------------	---------

Telephones	15,000
------------------	--------

\$15,277,244.00

MR. DOCKWEILER—

Table No. 3.....	\$13,672,086
------------------	--------------

Stock on hand.....	270,000
--------------------	---------

\$13,942,086.00

AVERAGE OF MESSRS.

GRUNSKY AND

DOCKWEILER	\$14,609,665.00
------------------	-----------------

AVERAGE OF ALL

FOUR WITNESSES..	\$15,896,419.75
------------------	-----------------

This last average of all four witnesses exceeds Mr. Grunsky's estimate by \$619,175.75. Considering the fact that the estimates of both Messrs. Adams and

Schuyler are partly based upon Mr. Schussler's figures which are shown to have been exaggerated, and the further fact that neither of these witnesses makes any deduction in his estimates for the depreciation of the plant; and also considering the thoroughness of the investigations conducted by both Messrs. Grunsky and Dockweiler, it is submitted that the preponderance of the evidence in this entire record does not establish a higher value for the structural properties of complainant than Mr. Grunsky's estimate of \$15,277,244.

That figure would have been reduced if Mr. Grunsky had allowed for the deterioration of the structural properties. Such allowance does not appear to have been made by any of the witnesses.

Under the rule laid down by the Supreme Court in the recent Knoxville Case (29 Sup. Ct. Rep., 150), it is settled that a plant which has been in use for a long period of years cannot be appraised on the same basis as a new plant.

LANDS, WATER RIGHTS AND RIGHTS OF WAY.

Mr. Schussler, in addition to his detail estimates on the structural properties, fixed values for the City Real Estate, Lake Merced property, Belmont and Millbrae Pumping Station tracts and Rights of Way. These properties, on which he gave separate values, form less than one-half of the total amount of his valuation, and yet they are the only portions upon which he attempts to fix definite or detail estimates. Similarly Messrs. Adams and Schuyler give estimates in detail only on the structural works. When these three witnesses attempt an appraisement of the lands and water rights (other than Mr. Schussler's estimates on the City Real Estate, etc., above stated), all moorings to cost price, purchase price or details of any kind are cast off, and their imaginations are allowed to soar entirely among the generalities of comparative and lump sum estimates. The methods by which these estimates are obtained differ somewhat with the various witnesses and are discussed in the following pages.

Both Messrs. Schussler and Schuyler resort to the ingenious method of taking from what they estimated would be the cost of the proposed Tuolumne System, the values obtained by them on the other portions of complainant's property. Mr. Schuyler's basis of value will be found set out on pages 526 to 530 of this brief. Mr. Schussler's deduction from his estimated cost of the Tuolumne System represented his estimates on the City

Real Estate, Lake Merced property and the Belmont and Millbrae Pumping Station tracts, as well as those on the structural properties, with the exception of the City Pipe System, the City Distributing Reservoirs, and the City Pumping Stations (pp. 1574-6).

Thus Mr. Schussler arrived at a figure of \$29,738,000 (pp. 1584 and 2402), and Mr. Schuyler at \$28,036,000 (p. 5452), as their respective estimates of the value of all the remaining properties of complainant. That they were both very much too high in their estimates of the value of certain parts of the structural portions of the system, has heretofore been shown. But assuming, for present purposes, that their values are correct as to those parts of the plant, is it possible that a total estimate arrived at in such a manner, of considerably more than one-half of their alleged total valuation, and largely in excess of the value of the entire properties as appraised by other witnesses, is to be accepted by the Court as a basis for a decree that the valuation fixed by the Supervisors is confiscatory? Included in these totals are thousands of acres of reservoir sites, and watershed lands, numerous and scattered water rights and artesian lands and wells; and yet neither of these witnesses attempts to segregate any portion of these startling figures, and inform the Court what value he places upon any distinct portion of the property. A much more simple, accurate and trustworthy method of valuation was available to all the witnesses, especially to Mr. Schussler. His long and intimate acquaintance with the details of complainant's

business would have enabled him to have ascertained and used as a starting point in his valuations the original cost of the several properties. The reason why this was not done is apparent when the tremendous discrepancies between original cost and what he alleges to be present reduplication value are observed. The unreliability of an assumed substitutional system as a basis of value is discussed elsewhere in this brief (pp. 60-61).

The conclusions there contended for dispose of these two valuations at one stroke. They are subject, however, to the further objection of uncertainty and indefiniteness.

METHOD BY WHICH MR. SCHUSSLER ARRIVED AT HIS VALUATION OF THE LANDS AND WATER RIGHTS.

Mr. Schussler testified as follows as to the basis which he adopted to arrive at his lump sum estimate on the reservoir and watershed lands of complainant:

"In order to ascertain the present unit value of all of the lands and rights of the Spring Valley Water Company at its headwaters, such as reservoir sites, water sheds and water rights, and including also the water rights to the outflow of Lake Merced, filter beds and artesian lands, I shall deduct the total cost heretofore detailed of all of the constructed works of the Spring Valley Water Company now gathering, storing and protecting its water supply and conveying it to its distributing reservoirs, and including also the value of Lake Merced property, minus the water rights to its outflow, and also including the Millbrae and Belmont pumping properties from the total of \$45,900,000 which represents the cost, when completed, of the Tuolumne scheme complete, with its two 48-inch pipe lines, and exclusive of its reservoir and distributing pipe system" (pp. 1574-5).

Mr. Schussler then proceeded to arrive at the value of the entire combination as follows (p. 1576) :

“Cost of bringing supply that two 48-inch pipe lines can bring safely to San Fran- cisco from Tuolumne source of supply, exclusive of the city distributing works..	\$45,900,000
Deduct from this structural portions, enu- merated on pages 1575-6, amounting to..	16,231,300
	<hr/>
Leaves a balance of.....	\$29,669,000 ”

This amount he stated, on page 1576, represents :

“The value of the entire combination of all of the properties, reservoir sites, water sheds and water rights of the Spring Valley Water Company in San Mateo, Alameda and Santa Clara counties, also including the water rights pertaining to the outflow of Lake Merced in San Francisco county, when compared with the Tuolumne scheme when constructed on the plans adopted by the city, and of a safe capacity of supply equal to the present capacity of the Spring Valley Water Company’s works.”

The above figure is subsequently increased by Mr. Schussler to \$29,738,000 by reason of a deduction of \$69,000 in his estimate of the value of the Crystal Springs Upper Dam, San Andreas and Pilarcitos Dams (p. 2402).

Further as to this method of valuation Mr. Schussler said :

“The time of acre valuation has passed. These properties can now only be valued as one combined entirety, as an effective, well-developed, well-connected, large water works unit now supplying all the present wants of San Francisco

and capable of economical, periodical and successive further development up to a capacity of nearly three times their present capacity of 35,000,000 gallons a day. The only possible method of valuing this grand and unique combination of water properties is as one unit, compared with the cost and value of another unit of similar initial capacity and capable of being developed up to the same future capacity, and having the same degree of safety and reliability and the same perfect title to all of its properties and rights" (p. 1556).

And:

"I simply considered my valuation of the Spring Valley Water properties and rights as a unit as compared with the Sierra Nevada scheme from the Tuolumne River, of the same capacity for furnishing water and with the same system of safety and protection" (p. 2384).

And:

"XQ. 3938. . . . I asked you how you expected the Board of Supervisors to do justice between your company and the people when the company itself has placed so many different valuations on its properties and so many different valuations on the separate items of its properties?

"A. Well, first, the property has gradually increased in value. Secondly, since the city has determined to build its own water works and officially adopted a certain plan it has given the company a definite method of valuation by comparing these works combined as a unit between works and properties with that particular one and with the particular scheme that has been adopted. And I state explicitly that, when compared with the adopted Tuolumne scheme, this would be the value.

"XQ. 3939. Would this value be something less on some other basis?

"A. If you could introduce the same amount of water from another source with the same safety, the same quality, the same pressure, and with the same facility of future in-

crease for less money than you could from the Tuolumne, then these works would be worth proportionately less in comparison" (pp. 2489-2490).

The uncertainties of the above method of arriving at the value of complainant's properties are shown when Mr. Schussler attempted to estimate the value of the Calaveras and Crystal Springs reservoir sites upon the same basis. He then found that the former was worth \$22,300,000 and the latter \$9,000,000, or the two together more than one and a half millions in excess of his estimate of the total value of all reservoir sites, water rights, artesian lands, filter beds, rights of way, etc. (p. 2398). Mr. Schussler's testimony in this connection follows:

"XQ. 3626. . . . Do you consider, in your judgment, the Crystal Springs reservoir worth more in combination with the rest of the system or alone—not in combination with it?

"A. I desire that as a part of the combination; as we have made it it is very valuable, but whether it is of the value that Mr. Grunsky puts on it, I do not know. I have never, as I stated this morning, figured any of these large branches of these properties separately. I have only figured them all as a unit. You want to pin me down to state a separate value for each one of these properties while in the combination of all as a unit. The only thing I have done in order to get at the value of the Calaveras as a storage proposition has been to compare that alone, as if there were nothing else, with the Tuolumne. As far as the Crystal Springs property is concerned, I have quoted from Mr. Grunsky's Tuolumne report wherein he says—and I have read it to you—the figure of \$12,500,000 shows the great value of that property. If I had gone to work and taken these values of \$22,300,000 for Calaveras and \$9,800,000 for Crystal Springs Valley and

then a great many other millions for all the other properties and embodied them in my estimate, you might find fault with me. I have simply used these figures for the purpose of getting at approximately what the storage facilities would be worth, if there were nothing else. I do not allude to any Crystal Springs or Pilarcitos reservoir when I figure the value of the Calaveras site alone. I figure that alone by itself. Now, finally, when I get through with bringing all the various evidences from all the sources as to the increased value of these properties, and their real value even as separate individual portions—not as a unit, but individual reservoirs and separate properties considered alone by themselves—then I go to work and take the entire combination of these properties, and by the proper exhibit of figures I show that as a combination of these properties, comparing it fairly with the Tuolumne proposed scheme, that that property is worth at least so and so much, which rounds off, after my voluntarily throwing off \$4,500,000 for properties not in use now, but which soon will be, I arrive at a round figure of about \$25,000,000 for the situation that I have detailed in full as regards real estate, properties, reservoir sites, water sheds, gravel beds, filter beds, the artesian country, etc., all of which is detailed in full” (pp. 2409-10).

And:

“I have adopted a very much lower scale of valuation for the entire works, as you will see in my testimony—at the end of my direct testimony—which would also account for a comparative reduction, a proportionate comparative reduction of the estimate of the Calaveras site when it comes to a value of the total. I do not segregate in the final summing up, the Calaveras property from the Alameda Creek property and from the Peninsula property. I put the entire property, of all these properties together, and after deducting those properties that are not now in use I arrive at the low figure of about \$25,000,000 which represents the value of all the reservoir sites of the company, of all the water sheds in use by the company and of all its water rights, as I distinctly state here in my testimony; in other

words, in the final summing up, from page 1584 to about 1586 of my testimony, the entire property is valued as a unit. I have emphasized all through my testimony, that this property cannot be valued separately, that it all has to be valued as a unit. All the waters are combined, they join with each other and all work together, all assist the others and the others assist all, and when I brought about a total valuation of all these properties combined as a unit, I proportionately naturally lowered also the comparative value which helped to make up the total value of this \$25,000,000 of the Spring Valley situation" (pp. 2351-2).

And:

"XQ. 3427. Do you say now that the combined value of all the properties which were included in your estimate of \$25,000,000, are worth \$25,000,000 by comparison with the Tuolumne scheme?

"A. Yes, on the basis of the estimates that I have adopted in my method of getting at it. I stated distinctly—

"XQ. 3428 (Intg.) Are they worth a different amount on any other basis?

"A. Yes. If you would figure out exactly what the Hetch Hetchy Valley dam would cost, instead of taking Mr. Grunsky's figures, if you would figure out exactly what the canal would cost along the Tuolumne River—properly built, properly lined with masonry work, properly arched over, then the total would be greater than the figure I have assumed, and of course, in the same proportion, the sum total of this valuation of \$25,000,000 would be increased.

"XQ. 3429. Do you not add anything to Mr. Grunsky's estimate?

"A. I did add something to his pipe line which he, according to my experience, had figured entirely too low.

"XQ. 3430. Then you think the sum of \$25,000,000 is not correct?

"A. It is correct as it is within the value.

"XQ. 3431. What is the real value?

"A. That I could not tell until a re-survey of the entire Tuolumne scheme was made by my office and a very accu-

rate estimate made to show how much more those works would cost than estimated by the City Engineer. If it was found that the cost would be increased to the amount of several million dollars; those would have to be then added to the total amount of \$25,000,000 which I estimate is the value of the situation of the Spring Valley, namely, the value of the combined unit situation" (pp. 2352-3).

Mr. Schussler repeatedly testified that the properties as a unit were more valuable than if the items were considered separately, and yet as shown in his testimony above, in his attempt to fix a separate valuation by this same comparative method he exceeded his total valuation before he had considered one-half of the properties. Which method of comparison can the Court adopt? Neither. It has somewhere been said that financial experts with sufficient figures and time for computations, can produce any result desired. The method of valuation suggested above would seem to warrant the same observation with regard to engineering experts.

Mr. Schussler's cross-examination on this subject is interesting:

"XQ. 3583. Did you estimate the value of that Calaveras property at \$22,300,000 simply for the purpose of showing that your final estimate is reasonable?

"A. No, sir; you know that I have again and again stated this morning that that was used for the purpose of finding out, in comparison with the Tuolumne scheme, what a reservoir site located as that is would be worth as a maximum for each million gallons storage capacity.

"XQ. 3584. And why did you want to get in your testimony what the reservoir site was worth per million gallons?

"A. That was valuable to know if you wanted to compare it with the mountain scheme.

"XQ. 3585. Yes, I know that, but I mean with reference to this case, why is it in evidence here?

"A. Simply to show how a person can get at the value of these sort of properties.

"XQ. 3586. Did you get at the value by that means?

"A. I did get at the value of a million gallons storage capacity by comparing it with what it would cost to bring it from the Tuolumne.

"XQ. 3587. But did you get at the values of the properties of this company in your final estimate by using the method of valuing a reservoir site at so much a million gallons?

"A. No, you know that I did not. I made an entirely independent estimate.

"XQ. 3588. Exactly; then, why did you put in that testimony at all?

"A. Simply to show what reservoir sites are worth in comparing them with other sources, and what the maximum value might be. I went on further and stated in that testimony that if the quantity of water was doubled that was to be brought from the Tuolumne River, that then the value of the storage capacity per million gallons would be decreased.

"XQ. 3589. But why did you want that in the testimony?

"A. Simply to show what reservoir sites might be worth.

"XQ. 3590. What they might be worth?

"A. Yes, sir.

"XQ. 3591. But you did not use that in estimating your final value, did you?

"A. No. It simply fortified me in knowing that my final sum-total estimate as a unit was very reasonable.

"XQ. 3592. You take these two items alone, Mr. Schussler, the Calaveras at \$22,300,000 and the Crystal Springs at something over \$9,000,000, these two items alone would make over \$32,000,000, or \$7,000,000 more than the entire amount you finally estimated the whole thing to be worth?

"A. Yes, sir, I know that, but you know yourself that these figures were not at all used for that purpose. They were simply used for outside purposes to get at as near as practical in the one case what might be the maximum value

of the storage reservoir site protected by a water shed and by water rights, and the other was a quotation from Mr. Grunsky's report to show the valuation that he holds in his mind of the Crystal Springs reservoir site, owing to its peculiar size, location, etc.

"XQ. 3593. Do you think that the figures \$22,300,000 plus \$9,800,000, or over \$32,000,000 for these two things alone, tend in any way to show that your estimate of \$25,000,000 for all the properties is a proper estimate?

"A. Is a reasonable estimate, yes.

"XQ. 3594. You think it tends to show that?

"A. Yes, it all bears towards that. You must always bear in mind the purpose for which these figures were made and you must furthermore bear in mind that the final and decisive summing up of my estimate occurs in the latter part of my direct testimony, and there the Tuolumne scheme is used as a comparison, while the works of the company are used as a basis, and if you followed the method I employed in arriving at the final valuation you know yourself, or you will know if you refresh your memory, that that is an extremely fair way of getting at it.

"XQ. 3595. Of course, I do not admit anything of the kind.

"A. I am satisfied that it is. Finally, and furthermore, all these various examples that I have given of the various component parts of value, that if individual portions were treated by themselves and without any connection with other things, the value would be very high; but when all of the combination together, as I have figured, as shown in my testimony, and after making the proper reduction for lands at the Arroyo Valle and Locks Creek and city property, which are not now in use, I come to a final round figure of about \$25,000,000 for those properties combined as a unit and compared with the Tuolumne scheme.

"XQ. 3596. Can you explain this to me, which seems a vast discrepancy: Can you explain to me how it is you arrive at a value of \$22,300,000 for the Calaveras reservoir solely and wholly by comparison with the Tuolumne scheme; you arrive at a value of \$9,800,000 for the Crystal Springs reservoir wholly and solely by comparison with Mr. Grun-

sky's figures on the Tuolumne scheme. And then when you come to your final estimate you arrive at a value of \$25,000,000 for the whole thing, including the whole Alameda system, the whole Crystal Springs, the whole Pilarcitos, the whole San Andreas and the water rights of Lake Merced, arriving at that value wholly and solely through a comparison with the Tuolumne based on Mr. Grunsky's figures and get a value of over \$7,000,000 less for the whole business?

"A. Yes, that is very easily shown by reading the testimony again, and I shall proceed to read it. I have done so this morning. I will show by that that you are misquoting me. I am stating absolutely and finally that the valuation of the Calaveras storage capacity, per million gallons, was arrived at as if there were no other water works here at all; it was simply and solely quoting the Calaveras property and comparing that alone with the Tuolumne scheme, as figured by Mr. Grunsky and somewhat corrected by me, I arrived at the figure that the maximum value of 1,000,000 gallons of storage capacity would be on that basis something over \$700. I then proceeded and showed voluntarily, in my own direct testimony, that if that supply from the Tuolumne was doubled, that then the maximum value of the storage capacity per million gallons at Calaveras would fall to about \$500 per million gallons. That settles that part of it. The comparison with Mr. Grunsky's figures, I simply quote his report on the Tuolumne scheme in which he proves, with his own figures, the comparative valuation that he places on the Crystal Springs reservoir, water sheds and water rights situation. I proceeded and deducted from his total what it would cost to construct these two dams, in the neighborhood of \$2,700,000, which leaves the net result, taking Mr. Grunsky's own figures as a basis, of about \$9,800,000. Those are Mr. Grunsky's figures and those are not mine. I wish to correct my testimony. I stated just now that these figures of Mr. Grunsky's were corrected by me; these were copied strictly from his report. The figure of \$9,800,000 is simply arrived at by taking Mr. Grunsky's own estimate of the saving that would be made by the ownership in connection with the Tuolumne scheme of the Crystal Springs property, and deducting from it what it would cost to reproduce those two

Crystal Springs dams. When I finally came to the official main estimate that I made which you will find distinctly exhibited on page 1572 of my testimony, you will there find that by taking into consideration all of the other works of the Spring Valley Water Works and deducting their cost and value from the total, I thereby arrive at net valuation of \$25,000,000, after having deducted from the total a certain amount of about \$4,500,000 for the properties not in use. That method that I have adopted, as I state, beginning on page 1572, is very plain, and it shows the entire method of my getting at it in sequence, and it does in no manner whatsoever interfere or show any discrepancy with any of the other methods of figuring, because, in the first place, I figured solely the Calaveras property by itself as if there was nothing else; in the main final estimate I figured the entire combination as a unit, all of the properties of the company, both on this side of the bay and the other" (pp. 2396-2401).

The reasons for Mr. Schussler's convenient method of bulking the assumed values of these properties are clearly stated by him on pages 2375-6:

"All of these complicated questions enter into the establishment of separate values; I found, when I commenced it, that it was next to impossible to get at separate values, and therefore I united the entire works and properties together and figured out their united value."

There can be no dispute as to the simplicity of the method adopted; but failure to produce evidence of value is not excused by alleged difficulty of proof. As stated above, proof could have been obtained if desired. The witnesses all attempt to place segregated values on the structural works, including pipes under ground and beneath the water. Surely it was not impossible to produce like detailed evidence of the value of the different lands, water rights, etc.

COMPARISON BETWEEN MR. SCHUSSLER'S ESTIMATES
ON LANDS AND ORIGINAL COST.

The evidence contains two independent computations of the primal cost of the lands and water rights of complainant. One is furnished in the testimony of Mr. Brooks, the land agent of complainant, who gave the cost of the various parcels of land included in the reservoirs and on the watersheds of the Peninsula and Alameda Creek Systems, and the individual tracts and lots comprised in the City Real Estate, Lake Merced, etc. These cost items will be found detailed on Table No. 4. The other statement on the cost of lands is furnished by Mr. Dockweiler in his testimony and in Defendants' Exhibits Nos. 91, 93, 94, 95 and 96, and will be found in detail in Table No. 4. The above named exhibits were compiled by Mr. Dockweiler mainly from copies of deeds furnished him by complainant company (pp. 601, 605, 606). A portion of the information contained thereon was also taken from exhibits submitted by complainant to the Board of Supervisors (pp. 607-608). It is thus seen that the computations of Messrs. Brooks and Dockweiler are entirely independent of one another; the first being given by the land agent himself from the records in his own office, and the other by Mr. Dockweiler from information furnished him by the land agent's office substantiated by exhibits of the Company.

It is noticeable that these computations are very close together, thus illustrating the fact that when definite

cost prices are relied upon, but small discrepancies appear in the evidence. The total cost figures given by these two witnesses are:

Mr. Brooks (pp. 3208 to 3254)	\$5,025,090.83
Mr. Dockweiler (pp. 602 to 612)	4,995,906.20

Mr. Wenzelburger gave in Defendants' Exhibit No. 101 considerable data from the books on the cost of land in the various portions of the system. On pages 36 to 38 of that exhibit, Mr. Wenzelburger detailed purchases of land prior to 1880, and on pages 209 to 215 gave similar data on purchases from 1880 to 1903. The grand total is given at page 215 as \$4,088,145.53.

The difference between the figures given by Mr. Wenzelburger and those of Messrs. Brooks and Dockweiler, lies in the fact that while Messrs. Brooks and Dockweiler obtained their data mainly from the deeds of land purchases, Mr. Wenzelburger made his statement up solely from the books. In a prior portion of this brief it has been shown that the books of the Company were kept in a very irregular manner and that purchases of lands were frequently charged to accounts covering certain structures. For instance, the Crystal Springs Dam account contains items totaling several hundred thousand dollars paid out on land purchases. If the books of the Company had been kept properly, Mr. Wenzelburger's figures would unquestionably have closely agreed with those of Messrs. Brooks and Dockweiler.

While it may be conceded that certain of the land

properties of complainant have increased in value since their purchase, no justification can be advanced for the increase from the cost figures above of \$5,025,090.83, or \$4,995,906.20 to the total estimate of \$31,932,000.00 given by Mr. Schussler on lands, water rights and rights of way as detailed on Table No. 4, the principal heads of which are as follows:

Combined value of the reservoir and water shed lands and water rights (pp. 1576-1584, 2402)		\$29,738,000.00
Lake Merced Lands (pp. 1511-2)	4,095,000.00	
City Real Estate (pp. 1510-2)	2,049,000.00	
Belmont and Millbrae Pumping Station tracts (p. 1512)		50,000.00
Rights of way (p. 1512)	500,000.00	
		<hr/>
		\$36,432,000.00
Less deducted for properties not in use (p. 1586)		4,500,000.00
		<hr/>
		\$31,932,000.00

DIFFERENCES BETWEEN MR. SCHUSSLER'S SEVERAL ESTIMATES OF LAND VALUES.

Mr. Schussler very clearly states the different methods of valuing water properties in this case (at p. 2845) as follows:

"Q. 5329. You can get as many valuations as there are theories, can you not?

"A. No, sir. Those are the two ways that these water properties have been valued at. Mr. Grunsky, for instance, has valued our property at so much per acre for a reservoir site, at so much per acre for an adjacent watershed and at so much per million gallons of water right.

"Q. 5330. That would give another valuation, would it not?

"A. The other valuation which I have adopted in my testimony, and which I think is the only fair one or the fairest one, at least—is to compare it with what it would cost to bring the same amount of water from another source, of equal quantity, quality and with the same good title and the same facility for future increase."

Prior to Mr. Grunsky's estimates of the Tuolumne system, Mr. Schussler was satisfied to value the lands, including reservoir sites, by the acre, as is shown by his figures submitted at the water rate investigations and referred to on Table No. 4, and detailed hereafter on Table No. 37. In 1901, he valued reservoir sites at \$1,000 per acre and water-shed lands at \$100 per acre (pp. 2307-9).

In 1901, Mr. Schussler also stated: "Then in our various condemnation suits the value of the reservoir sites have been proved to be between \$500 and \$1000 an acre; that is those portions that were to be covered by water" (p. 2736).

In 1891, Mr. Schussler valued the entire properties of the company in round figures, at \$20,000,000 (p. 2321). The daily capacity of the plant at that time was 30,000,000 gallons (p. 2323). Considering the value of the service alone, the increase of 5,000,000 gallons' capacity to the date of this suit would add one-sixth to the

above figure and make the present value, on this basis, \$23,333,333.

As further showing the differences between Mr. Schussler's estimates in this suit and prior thereto, Table No. 37 is submitted. This table is a comparison of Mr. Schussler's estimates in 1901 and in this suit. On some of the lands, however, Mr. Schussler did not give an estimate in 1901, and where this is the case the figures given by him in this suit have been substituted. The difference, large as it is, would have been much greater had the figures for 1901 been available in all cases. As it is, the value of the lands, according to Mr. Schussler, trebled in the course of three years.

Can this Court base a finding of value upon the estimates of a witness whose figures increase in three years from \$12,892,000 to \$36,432,000, or from \$11,773,000 to \$31,932,000?

A study of Table No. 37 reveals the fact that the principal differences lie in the reservoir and watershed lands, the value of which Mr. Schussler quadrupled in the interval of three years between 1901 and 1904. If his estimate in this suit was reduced to definite figures, his valuation of reservoir lands would be \$4,000.00 per acre and watershed lands \$400.00 an acre. This deliberate inflation of value is in direct contradiction of the facts disclosed by the record. Extracts given below from the Minutes show that within a few months of the date on which Mr. Schussler fixed a lump sum of \$29,738,000.00 for the other properties of complain-

Comparison of Mr. Schussler's Estimates of Value of Lands, Water Rights and Rights of Way.

VALUATION IN THIS SUIT.

Combined value, according to testimony in this case, obtained by deducting his valuation of structural works, etc., from his estimate of cost of the Tuolumne system	\$29,738,000
Lake Merced Lands (pp. 1576, 1584, 2402)	4,095,000
City Distributing Reservoir Sites (pp. 1510-1)	657,000
Other City Real Estate (pp. 1511-2)	1,392,000
Millbrae and Belmont Pump Tracts (p. 1512)	50,000
Rights of Way (p. 1512)	500,000
	<hr/>
	\$36,432,000

Deduction for Properties Not in Use:

Arroyo Valle (4440 acres) and Locks Creek (1500 acres)	\$3,856,000
Market Street Reservoir Tract (pp. 1512, 1586)	400,000
Industrial School Reservoir Tract (p. 1586)	125,000
	<hr/>
	4,500,000 (rounded off)

(Table No. 4) \$31,932,000

VALUATION BEFORE BOARD OF SUPERVISORS, 1900-01.

Peninsula System:	
Reservoir Lands, 2340 acres at \$1000 an acre (p. 2308)	\$2,340,000
Watershed Lands, 17,300 acres at \$100 an acre (p. 2308)	1,730,000
Water Rights (p. 2308)	600,000
	<hr/>
	\$4,670,000

Alameda Creek System:	
Reservoir Lands, 1350 acres at \$1000 an acre (p. 2308)	1,350,000
Watershed Lands, 3800 acres at \$100 an acre (p. 2308)	380,000
Water Rights (p. 2308)	1,000,000
	<hr/>
	2,730,000

\$7,400,000

Lake Merced Lands and Water Rights (p. 2259)

2,700,000

City Distributing Reservoir Sites (p. 2521)

850,000

The following are inserted at Mr. Schussler's figures in this Suit, as he did not estimate on them in 1900-01:

1,392,000

50,000

500,000

Deducting Lands Not in Use (in the cases of Arroyo Valle and Locks Creek on the basis of Mr. Schussler's estimates for watershed lands in 1900-01 (p. 2308) and the two reservoir sites on Mr. Schussler's own figures:

\$12,892,000

Arroyo Valle, 4440 acres (p. 1585) at \$100 an acre

\$444,000

Locks Creek, 1500 acres (p. 1585) at \$100 an acre

150,000

Market St. Reservoir Tract (pp. 1512, 1586)

400,000

Industrial School Reservoir Tract (pp. 1512, 1586)

125,000

\$11,773,000

ant, constituting the reservoir and watershed lands and water rights, the Company purchased land in the various systems at figures about equal to or less than his estimates of 1901.

LAND VALUES AS SHOWN BY PURCHASES DISCLOSED BY THE MINUTES.

RESERVOIR AND WATERSHED LANDS.

The following extract from Book "B" of the Minutes, pages 65-66, under date of May 26, 1904, shows that the Company purchased land near the head of the San Andreas reservoir at a cost of \$100.00 an acre.

"The Committee also recommended the purchase of 157 acres of land near the head of Lake San Andreas from the estate of Chas. Ashton, decd., and adjoining the Sneath property, at a cost of not more than \$100 per acre, and the Board thereupon duly adopted the following Resolution, viz.:

"Resolved, that the President be and he is hereby authorized to purchase from the Chas. Ashton Estate a tract of land near the head of the San Andreas Lake, containing 157 acres, more or less, at a price not exceeding \$100.00 per acre."

This purchase of land in 1904 at \$100.00 per acre, which was the figure employed by Mr. Schussler in his estimates of 1901 (see Table No. 37) proves, so far as San Andreas is concerned, that Mr. Schussler's estimate of 1901 represented about the value of the lands in 1904, and that Mr. Schussler's action in quadrupling

same in his estimates in this suit is unreasonable and unwarranted.

A similar condition exists as to Alameda Creek lands, as a resolution, passed by the directors of complainant company on June 2, 1904, authorized the purchase of a piece of land adjoining the Sunol Filter Beds at about \$100.00 per acre (Book B, page 69).

With regard to the Crystal Springs lands the minutes show a resolution passed on May 12, 1904, to exchange with Mr. Fifield forty acres of the Company's lands at Crystal Springs for twenty acres of his lands (Book "B," p. 56). On April 27, 1905, another resolution was passed changing the description of these lands (Book "B," p. 170-1), but the lands seem to be the same as covered by the first resolution.

Mr. Fifield testified that he had offered his land at the reservoir and on the water-shed of Crystal Springs for sale for \$75 an acre, including improvements, for the two years immediately preceding the giving of his testimony (October 30, 1905).

This would make the lands conveyed to Mr. Fifield worth, in his judgment, one-half of \$75 per acre.

Mr. Fifield's testimony follows:

"Q. 17. Have you any improvements on the land?

"A. Yes, sir. I had a ten-room house and also several stables. I have also cleared the land of all underbrush. Considering the expense of the clearing and the buildings thereon, I should judge I have expended about \$10,000 in improvements.

"Q. 18. Have you ever offered your land for sale?

"A. I have.

"Q. 19. How much have you asked an acre?

"A. *Including improvements, \$75 an acre.*

"Q. 20. How long has your property been offered for sale?

"A. For the last two years" (p. 49).

Mr. Fifield's land was located between the San Andreas reservoir and the Pilarcitos reservoir, stretching down to within one-quarter of a mile of high water mark of each reservoir (p. 48).

The foregoing extracts from the minutes show that centrally located land on the San Andreas and Alameda Creek systems were purchased by complainant in 1904 at \$100.00 per acre, while land situated near Crystal Springs Reservoir was worth, in the opinion of the directors of complainant company, on the basis of their exchange with Mr. Fifield in 1905, some \$37.50 per acre. These recent purchases and exchange undoubtedly covered lands equal to the average of the watershed lands on each system, and, recorded as they are in the minutes of the company, form the very best basis for present value. We submit that Mr. Schussler in quadrupling such values, placed a preposterous figure on the watershed lands of complainant company. By inference the same comment is justified as to the reservoir lands making up with the watershed lands his lump sum estimate of \$29,738,000.

LAKE MERCED LANDS.

On February 13, 1905, Mr. Schussler testified in connection with the Lake Merced lands: "That the "property has been quoted and valued for a number "of years past—for several years past—at \$1500 an "acre" (p. 2360). On January 19, 1905, *less than a month prior to the giving of this testimony*, the following resolution was adopted by the directors of the company to purchase certain lands at Lake Merced at \$750 per acre, and at about \$970 per acre respectively.

"The following resolution was then duly moved and seconded and unanimously adopted, viz:

"Resolved, That this corporation purchase from George Leviston, William Brooks and Kate L. Brooks the tract of land, commonly known as the 'Brooks Tract,' situated in the City and County of San Francisco, State of California, between the south arm of Lake Merced and the Pacific Ocean, containing fifty-five and seventy-seven hundredths (55.77) acres, at the price of seven hundred and fifty (\$750.00) dollars per acre, and also purchase from T. M. Osmont the tract of land next south of the above described tract of land and commonly known as the 'Osmont Tract,' containing seventy-two (72) acres, more or less, for the sum of seventy thousand (\$70,000.00) dollars—all rights, privileges and appurtenances belonging to said tracts and each thereof under prior reservations made in grants by their predecessors in title to be transferred to this corporation with the said tracts" (p. 49 of Book B).

On April 14, 1904, the purchase of the property known as the "Gum Forest" (shown on Defendants' Exhibit No. 96), which adjoins the Ingleside road and

is nearest the city, and is therefore the most valuable, at \$1250 per acre, was authorized:

"The following resolution was then duly moved, seconded and adopted, viz:

"Resolved, That the Land Agent, Mr. Brooks, be and he is hereby authorized and empowered to purchase, on behalf of the Company, that part of the Rancho Laguna de la Merced known as the 'Gum Forest,' containing 22 8/10 acres, at a price not to exceed \$1250.00 per acre" (p. 42, Book B).

It having been shown that some of the most valuable of the land at Lake Merced was purchased at \$1250.00 only eight months previous to Mr. Schussler giving his estimates on the whole of the land at \$1500.00 (December 8, 1904, pp. 1511-2); that other land was purchased at \$750.00 (one-half of the estimated value), and at \$970.00 only six weeks after Mr. Schussler furnished such estimates and within a month of the reaffirming of such figures on cross-examination, we submit that Mr. Schussler's statements on the value of the Lake Merced lands are disproved and his estimates shown to be extravagant and unwarranted.

It is further to be noted from Table No. 37 that while Mr. Schussler valued the lands alone at Lake Merced in this suit at \$4,095,000.00 (p. 1511), equal to \$1500.00 an acre, only three and one-half years previous, in 1901, he valued the lands and water rights as a whole at \$2,700,000.00 (p. 2260), or about \$1,000.00 an acre. We contend that Mr. Schussler's estimates on Lake Merced lands, either of 1901, or in this suit, cannot be upheld in view of the showing that other land at Lake Merced was actually purchased in 1905 at con-

siderably less than the figures covered by those estimates.

The principal points of difference between Mr. Schussler's estimates on lands in 1901 and in this suit are shown by Table No. 37 to have been those above discussed, namely, the reservoir and watershed lands and the Lake Merced lands. On the rights of way Mr. Schussler can also be shown to have considerably overestimated, and we now consider this portion of complainant's properties.

RIGHTS OF WAY.

Mr. Schussler estimated that complainant owned fifty miles of rights of way through private property, and that the value of same was \$10,000 per mile, or a total of \$500,000 (pp. 1512, 2891). Mr. Schussler is shown to have obtained this figure of fifty miles by measuring on a map (p. 2892) :

"XQ. 5567. Where did you get your figure—50 miles?

"A. I measured it on the map.

"XQ. 5568. You measured the rights of way on the map?

"A. Yes, sir, through the different tracts of land.

"XQ. 5569. What map shows that?

"A. Our various maps. For instance, where we enter from private property into the county road—at that point this private right of way terminates."

Mr. Schussler is thus seen to have obtained his distance of fifty miles by measuring the sections of the pipe lines that did not lie under the county roads.

Mr. Brooks' testimony following shows:

1. That Mr. Schussler's estimate of fifty miles of rights of way is based upon records of the engineering department as to the length of pipe, flume, etc., without regard to whether the same was laid upon land owned by the Company in fee simple or upon land in which they owned an easement only.

2. That the Company has no records upon which to base an estimate of the total length of rights of way.

3. That some rights of way have been acquired with other properties and cost nothing additional.

Mr. Brooks said:

"A. In some cases deeds were given; for instance, in the case we speak of, the right of way through what is now the Sutro property, that was made a part of the purchase of the 25-acre tract.

"XQ. 921. Was anything additional paid for it?

"A. No, that is part of what was bought for that \$25,000.

"XQ. 922. Can you tell how many miles of right of way the company owns outside of San Francisco?

"A. No.

"XQ. 923. Have you any records of the rights of way outside of San Francisco?

"A. Nothing I should like to swear to; mostly guess work.

"XQ. 924. Have you no deeds showing the rights of way outside of San Francisco?

"A. Yes, but very indefinite; property lines have changed since those rights of way were given and I can not identify them.

"XQ. 925. I will ask you to produce the record of those rights of way.

"A. Mr. Dockweiler has every one of them. I can not produce any more than you have already.

"XQ. 926. I will ask you to give us the amounts paid for rights of way outside of San Francisco and the distances that the rights of way cover?

"A. I can not give you the distances. In some cases I have been able to identify them so that I can give the amounts; the distances are rarely given. A man who owns a tract of 500 or 1,000 acres gives us a right of way across his property.

"XQ. 927. Is there not anything in the records of the Spring Valley Water Works showing the distances of rights of way?

"A. In some cases nothing at all; they simply ran across a man's property. In this particular case there was nothing to indicate either the distance or the direction. In some few cases it is possible to identify the distance. Where I found it possible myself I have done it, but it is very incomplete; I think it is correct as far as it goes, but it does not go as far as it ought to have gone, or as far it is would have gone if the record had been kept in early days with any particular care in that respect.

"XQ. 928. I will ask you then, to give us whatever information you have?

"A. I will do that to-morrow, I will answer the question, as far as lies in my power, to-morrow.

"XQ. 929. Did you give Mr. Schussler any information regarding the length of rights of way?

"A. No.

"XQ. 930. Do you know where he got his distance—50 miles?

"A. I have not the remotest idea.

"XQ. 931. Would any other official connected with the Spring Valley Water Works or the Spring Valley Water Company have the information?

"A. I do not think anyone would. Not to be vain in the matter I do not think what I could not dig out the rest of them could.

"XQ. 932. Mr. Schussler probably knew the length of miles of pipe laid, did he not?

"A. Yes, he knew it by that.

"XQ. 933. Therefore, so far as that remark is concerned, it did not apply to him?

"A. No. I mean with regard to easements and lands and so forth. So far as the actual length of pipe went he had the records in his office and knew exactly; no one else did.

"XQ. 934. Do you know how many miles of the various pipes were laid through private property?

"A. No" (pp. 3202-4).

And:

"XQ. 1682. Nobody could give that information how long those rights of way are?

"A. I do not know of anyone who can, although the Engineer's department might be able to. It might be possible to approximate it by taking the length of the flume or the tunnel; that they know; they pay no attention to property lines, and I do not pay any attention to the length of the flume.

"XQ. 1683. You have us going and coming?

"A. Yes.

"MR. KELLOGG—If we had a sufficient allowance we would hire a clerk to keep those two things together but we have not that allowance.

"THE WITNESS—Nothing but an actual survey would show it. They survey a line from beginning to end. They do not pay attention to dividing lines because they do not enter into their calculations at all.

"XQ. 1684. It would be impossible to say how much runs on private roads and how much on the county road?

"A. It would be impossible to give an approximation in most instances.

"XQ. 1685. Would it be possible for you to give an approximation of the distance a pipe line or flume runs over private property?

"A. No, I do not think I can do it" (p. 3289).

COST DATA ON RIGHTS OF WAY.

Mr. Schussler stated that he did not have any data as to the cost of these rights of way. "In my estimate I only estimated it according to my judgment based on my experience" (p. 2893). And again, "That is just a round approximate figure" (p. 2898). Again, he stated that he did not know as to the cost of these rights, nor take it into consideration as to either the Pilarcitos or San Andreas pipe lines (p. 2898).

Complainant's witnesses evinced an unwillingness to disclose data of prices paid for rights of way. Mr. Schussler thought the land agent (Mr. Brooks) could supply the information desired, and Mr. Brooks considered the Engineer's Department might be able to do so. Had Mr. Schussler been disposed, he could have had a very good basis for his estimate from the minutes or books of accounts. Numerous purchases of rights of way are recorded in the minutes, many of which cover purchases of land as well, while others are for a very much less figure than Mr. Schussler's estimate of \$10,000.00 a mile.

In Book "B" of the Minutes, at pages 401-2, under date of June 1, 1871, is recorded the purchase of a right of way at \$1,500.00 per mile with water privileges in addition, as follows:

"The Presdt. said the rights of way from Mess. Howard & Poetz would cost \$1,500 per mile & the privilege of water for three cattle troughs for each. The Board approved of the same & the Presdt. was directed to have the Deeds drawn."

Again, in Book "E" of the Minutes, at page 439, under date of July 28, 1898, the following is found:

"The following resolution was introduced, duly seconded and adopted viz:

"Resolved that the purchase by this Company from Robert L. Coleman for the sum of \$625. of a right of way for a waste pipe or drain from the pump lot heretofore purchased by this company, being a portion of the Carrie M. P. Coleman tract to tide water, be and is hereby approved and ratified."

The length of this right of way is given by Mr. Brooks at page 3249 of his testimony as 1250 feet and the consideration therefor being \$625, it would work out at \$2640 per mile.

As further illustrating the cost price of rights of way, we give the following extract from Mr. Brooks' testimony, which shows that a right of way, 1800 feet long, near the Ocean View Pumps, was purchased for \$1750 (p. 3208).

"\$1,750 for a right of way for pipes along the boundary of a property belonging to a man who sold us this 1¼ acres down to the Ocean View pumps.

"XQ. 964. How far is that?

"A. Mr. Dockweiler has it there on the map and can tell it better than I can. I do not think I ever knew what the distance was. I bought it myself.

"MR. KELLOGG—It looks like a good half mile on the ground.

"THE WITNESS—I bought it because I could not help myself; that is all, and I paid as little as I could.

"MR. DOCKWEILER—It is 1,800 feet according to this scale."

This right of way was 1800 feet long and cost \$1750.00, making a cost per mile of \$5133.00. Mr.

Brooks' testimony shows that he was forced to buy this right of way and paid as little as he could, the inference being that of necessity he had to pay a high price. Another feature is that this right of way was within the city limits, which would entail a higher cost than in a country district. Yet with all these conditions leading to a high price, the total cost per mile is shown to be \$5133.00, which is but little more than one-half of Mr. Schussler's estimate figure of \$10,000.00. In this connection it would be well to remember that the majority of the rights of way are at a considerable distance from the city.

Another cost figure given in the record on rights of way is in respect to the Alameda 36-inch Pipe Line. This right of way was purchased in June, 1902, from the Dumbarton Land and Improvement Company, and the cost is given at page 215 of Mr. Wenzelburger's Exhibit No. 101 as \$11,000.00. Mr. Brooks' testimony shows that the length of this right of way was three miles (p. 3205). The cost per mile would therefore be in the neighborhood of \$3700.00, which is only about a third of Mr. Schussler's estimate of \$10,000.00 per mile.

Both Mr. Schussler and Mr. Brooks testified that the majority of their rights of way were secured through the purchase outright of the land (pp. 2890, 3202). The following extract from Book "B" of the Minutes, pages 367-8, under date of June 1, 1870, is submitted as evidence of the fact that purchases of land frequently included a right of way:

"The President informed the Board that Mr. Linden would sell the Works Ten Acres of land at outlet of Locks Creek Tunnel together with a strip of land 100 ft. wide through the Feliz Rancho (necessary for the right of way for the Locks Creek Line) for the sum of \$2000.

"The Prest. was authorized to make the purchase."

The foregoing extracts from the minutes and further cost data hereafter referred to prove that many rights of way were obtained through purchases of other land without additional cost; and also that when rights of way were purchased separately, the consideration therefor was very much less than the amount of Mr. Schussler's estimate. These facts probably furnish the reason why Mr. Schussler ignored the convenient basis of cost from the records and substituted therefor the wholly unconvincing and unsatisfactory method of measuring off on the map a certain number of miles and valuing same at an exaggerated figure per mile.

It must be remembered that all the land purchases were included in the statements of Messrs. Brooks and Dockweiler, as detailed on Table No. 4, and therefore the greater portion of the cost of rights of way on which Mr. Schussler gave a separate figure would be covered in the figures of Messrs. Brooks and Dockweiler.

The following further extracts from the Minutes are given as evidence of the prices paid for rights of way:

"On motion of Mr. Mayne, seconded by Col. Fry, Resolved, that this Board ratify the purchase made by the President of the right of way, for Crystal Springs pipe line from Wm. H. Howard and Agnes Bowie as per deed dated May 5, 1884,

for the sum of \$3000., and recorded in Liber 38 of Deeds, page 1 in San Mateo County, also

"for the purchase made by the President of the right of way for Crystal Spring pipe line, from the Bank of California for the sum of Five Dollars as per Deed dated June 5, 1884, and recorded in Liber 38, page 6 in San Mateo County. Carried" (Book C, p. 428, September 1, 1884).

And:

"On motion duly seconded, Resolved, that Mr. D. O. Mills be paid the sum of \$5,000 for deed of Right of Way of our present line of pipe through lands owned by D. O. Mills & Easton, A. J. Easton & Francis Cunningham" (Book B, p. 339, August 2, 1869).

And:

"Presdt. reported that Mr. Mills would not take less than \$5,000 for Right of Way through his and Mrs. Easton's grounds, this figure was thought exorbitant & considerable conversation ensued on the subject. Mr. Lawrence was called into the Board & gave it as his opinion, That in view of other favors granted by Mr. Mills to the Works & of the expense attending & of the ill will likely to arise from condemnation, that the price asked should be paid. The Board took this view of the matter & the Presdt. was directed to have the deeds drawn" (Book B, p. 402, June 1, 1871).

Turning to defendants' witnesses, it is noticeable that much more sincerity is displayed in an attempt to establish the cost of the rights of way.

Mr. Wenzelburger details on pages 36 to 38, and 209 to 215 of Defendants' Exhibit No. 101, various payments for rights of way, which he totals upon page 225 of said exhibit to \$53,500.55. A close study of the various items, and comparison with exhibits and

other data in the record, reveals the fact that the greater proportion of these payments covered rights of way on the Peninsula System, i. e., in San Mateo and San Francisco counties. This conclusion is corroborated by the fact that at pages 252 to 269 of Defendants' Exhibit No. 101, detailing the Suburban Company Contracts Account, Mr. Wenzelburger gave items totaling up to \$25,431.95 for right of way payments in Alameda County.

Numerous lump sum payments in certain months and years found all through the above named pages of Exhibit No. 101, of which no details are furnished, would preclude regarding this figure as correct were it not for the fact that corroboration can be obtained from another source by figures obtained on an entirely different basis.

Mr. Dockweiler, in Defendants' Exhibit No. 95, which was compiled from exhibits filed by complainant with the Board of Supervisors during the years 1900-03 (p. 608), gave a list of rights of way purchased in Alameda County, with three additional rights of way in San Mateo County, totaling \$37,547.55 (p. 610). A close comparison of the items making up this amount with those given in Mr. Wenzelburger's total of \$53,500.55, as detailed in Defendants' Exhibit No. 101, shows that certain payments amounting to \$12,374.80 are given by both witnesses. Deducting this \$12,374.80 from Mr. Dockweiler's figure of \$37,547.55, we have \$25,172.75, representing expenditures not included in Mr. Wenzelburger's figure of \$53,500.55. It will be

noted how closely this agrees with the \$25,431.95, obtained from Mr. Wenzelburger's details on Alameda County right of way payments.

To arrive at the cost of the rights of way, we therefore add together the two figures obtained from Mr. Wenzelburger's Exhibit No. 101 of \$53,500.55, and \$25,431.95, and get thereby a total of \$78,932.50. We submit that this figure represents very closely the cost of the rights of way, independent of land purchases, and is obtained from the most reliable data to be found in the record.

Mr. Schussler's estimate of \$500,000.00 (p. 1512) is thus shown to be about six and one-half times the original cost, which cannot be justified, especially as Mr. Wenzelburger's details show that many of the payments were made within recent years.

RIGHTS OF WAY GONE OUT OF USE.

No deduction has been made in respect to rights of way gone out of use as no definite figures could be obtained from the record. The items of cost date from 1864, since which time, owing to some of the old pipe lines and flumes having gone out of use, and the new lines being laid on different routes, the rights of way under which the original pipe or flume was laid have been abandoned. An extract from Mr. Schussler's testimony in regard to the portion of the original Pilar-

citos Flume from Ingleside to Lake Honda follows (pp. 1692-3):

"XQ. 570. That flume has gone out of use entirely?

"A. Entirely, sir.

"XQ. 571. There were rights of way for that flume?

"A. I have no doubt they had to be acquired.

"XQ. 572. Those rights of way are not in use, are they?

"A. No, sir.

"XQ. 573. Nor that flume?

"A. No, sir, but we have other rights of way through that same property.

"XQ. 574. But those particular rights of way are not in use?

"A. Those particular rights of way are not in use, no, sir.

"XQ. 575. Were the rights of way owned by the company at that time—at the time of the consolidation—the same as the rights of way acquired by the company for the present 30-inch pipe line from Pilarcitos?

"A. No, sir, it was an entirely different route."

and in connection with the original San Andreas 30-inch pipe (p. 1751):

"XQ. 876. Did you have rights of way for the old 30-inch pipe line?

"A. We did.

"XQ. 877. And you discontinued those rights of way?

"A. We gave them up after we took up the pipe."

CONCLUSIONS AS TO MR. SCHUSSLER'S VALUATION ON LANDS, WATER RIGHTS AND RIGHTS OF WAY.

Defendants submit that the foregoing discussion of Mr. Schussler's estimates of the present value of lands, water rights and rights of way, and of the theories upon which they are based, shows that such estimates cannot be accepted as proof of value and must be rejected for the following reasons:

1. Such estimates are based upon a comparison with the supposed cost of a substitutional system. This method of arriving at present value is not justified by the law.

2. Even if the above method of arriving at the value of the existing system by comparison with a proposed substitutional system not yet constructed were permissible, it has not been proved that Mr. Schussler's additions to Mr. Grunsky's estimate of the cost of the Tuolumne System are correct. If Mr. Schussler's estimate of the cost of the substitute is incorrect, any weight which his valuations might otherwise have, disappears.

3. Such estimates are altogether too general, indefinite and uncertain to form any basis of valuation.

4. Such estimates are approximately six times the original cost of such properties as disclosed by the record.

5. Such estimates are more than three times Mr. Schussler's own estimate furnished by him to the Board

of Supervisors in 1901, three years previous to the giving of his testimony.

6. Mr. Schussler's statements as to present value of many of the lands are contradicted by the Minutes of complainant.

7. Data as to original cost contained in the Minutes and the Account Books of complainant were available to Mr. Schussler and his refusal to use same is additional evidence of the unreliability of his theoretical estimates.

Before proceeding with the discussion of the bases of estimates of the other witnesses for complainant, we here insert a consideration of two subjects affecting the estimates of Mr. Schussler, and as to the latter one the estimates of the other witnesses. These subjects are: (1) Partial ownership of watershed lands, and (2) Value as measured by Substitutional System.

PARTIAL OWNERSHIP OF WATER SHED LANDS.

Mr. Schussler, both in his direct and cross-examination, stated that ownership of the water-sheds tributary to reservoirs is necessary for the protection of the water from pollution (pp. 486-7, 1603-9).

PENINSULA SYSTEM.

The testimony of Messrs. Brooks and Fifield shows that a considerable portion of the water-shed draining into the Crystal Springs and other reservoirs is owned by other parties and used for dairy and pasturage purposes.

Mr. Fifield testified as follows (p. 48):

"Q. 10. Have you any property in San Mateo county?

"A. Yes, sir; I have.

"Q. 11. Where is it located?

"A. I have a ranch which is located within the water sheds of the Spring Valley Water Company. My land lies between the San Andreas reservoir and the Pilarcitos reservoir and stretches down to within one quarter of a mile of high water mark of each reservoir. The drainage of my land flows on the one side into Crystal Springs reservoir, and on the other side into the San Andreas reservoir.

"Q. 12. Does your land also drain into the Pilarcitos reservoir?

"A. Yes, sir; it does. Most of the drainage goes into the Crystal Springs reservoir, but some of it goes into the San Andreas and some of it into the Pilarcitos reservoirs.

"Q. 13. How much land do you own within the Spring Valley water sheds?

"A. 1107 acres.

"Q. 14. What do you use the land for?

"A. At one time I operated the land as a ranch. I conducted a dairy thereon, having 150 head of cattle. The last ten years I have rented the same to a man who is using it for the same purpose, that is, for a dairy farm.

"Q. 15. Do you know how many head of cattle he has on the ranch?

"A. I do.

"Q. How many?

"A. About 125 head of cattle."

Mr. Brooks stated that a dairy farm known as "Sneath's Jersey Farm Dairy," and owned by the man whose name it bears, is located on the San Andreas water-shed, about a mile from the reservoir, and might drain into it (p. 3138). Also that a man named Scarpa owns some land on the same water-shed (p. 3251).

ALAMEDA CREEK SYSTEM.

Only a small portion (6%) of the entire Alameda Creek system water-shed is owned by complainant, as is shown by the following testimony of Mr. Dockweiler:

"MR. PARTRIDGE—Q. 132. What portion of the water-shed tributary to the Alameda Creek is owned by the Spring Valley Water Company? What portion is owned or controlled or claimed by any other person or corporation, and what portion is not so owned or controlled or claimed?

"MR. KELLOGG—I object to the question as immaterial, ir-

relevant and incompetent as to what claims are made by other corporations or persons.

"A. The watershed tributary to the Sunol dam and the Alameda Creek, known as the Alameda watershed, is about 600 square miles. What is known as the watershed tributary to the Calaveras reservoir site has an area of 103 square miles. Out of this area the Bay Cities Water Company claims 45.3 square miles, leaving the Calaveras watershed an area of 57.7 square miles uncontested by them. Out of this area the company owns 7392 acres which comprises the Calaveras reservoir site and adjoining lands.

"MR. PARTRIDGE—Q. 133. You mean by 'the company' the Spring Valley Water Company?

"A. The Spring Valley Water Works and the Spring Valley Water Company. Eight hundred of these acres are not tributary to the reservoir. The Arroyo Honda watershed can be made tributary to the proposed Calaveras reservoir. This has an area of 37 square miles, making the territory which can be physically diverted to the proposed Calaveras reservoir equal to 140 square miles, or 89,600 acres. The Spring Valley Company or Water Works own 8 per cent of this watershed. The total land owned by the Spring Valley Water Company approximately above Sunol dam is 973.97 acres, known as the Pleasanton Wells Tract, or the Laguna Creek Wells; 14,213.23 acres on the San Antonio Creek and the Calaveras Creek below the Calaveras dam site, and 7392 acres in the Calaveras reservoir site and adjoining lands. All the land owned by the company is 23,399.59 acres, or 6 per cent of the total watershed of 600 square miles, which equals 384,000 acres. My computation does not include the lands lying in the Arroyo Valle or any lands that may be owned or held by them through trustees. These are only the lands the descriptions of which were furnished me in deeds that were handed me by the representatives of the company as lands claimed by them as being in use.

"MR. PARTRIDGE—We will offer this map in evidence, and ask that it be marked Defendant's Exhibit No. 86" (pp. 572-3).

On Defendant's Exhibit No. 86, the entire Alameda Creek water-shed is outlined by a red border line. Within that area are smaller border lines enclosing areas which are directly tributary to the different reservoir sites of complainant. The areas colored yellow upon this map are those areas from which the Bay Cities Water Company claim the right to divert storm waters.

Mr. Schussler also admitted that the company only partly owns these water-sheds (p. 1629).

Mr. Brooks admitted that the company owns no lands in the Calaveras Valley except either in the bed or on the slopes of the actually proposed reservoir site (p. 3142), about three miles in length (p. 3140); and that even in the reservoir site there are about 400 acres not owned by the Company (p. 3140).

Defendant's Exhibit No. 93 shows the lands owned by complainant within the Calaveras Reservoir site, and confirms the statement of Mr. Brooks.

LAKE MERCED.

The value of Lake Merced as a water-producing property is affected by the fact that its water is not of a good quality. Mr. Grunsky testified in connection with the reservoirs and water-sheds of complainant:

"The water is collected in reservoirs from catchment areas

of comparatively small extent. These catchment areas are not free from human activities. Among these reservoirs is Lake Merced, lying within the boundaries of San Francisco, with a considerable population on the watershed area that is tributary to the lake. Although works have been constructed for the interception of surface drainage, in order that the water reaching the lake may be only that which percolates through the sands, the lake cannot be regarded as furnishing a perfectly safe water. Water from such a source should be subjected to filtration before delivery to the inhabitants of the city" (p. 197).

Mr. Schussler admitted in 1879 that the water of Lake Merced was poor compared with the quality of the other water (p. 1628).

In view of these several outstanding interests in the water-sheds and probable contamination of the water supply on that account, it is evident that the water rights cannot be valued, as has been done by complainant's witnesses, on the same basis as if the complainant owned the entire water-shed areas.

VALUE AS MEASURED BY SUBSTITUTIONAL SYSTEM.

Many of complainant's computations of value are based upon comparisons with the proposed Tuolumne system.

As pointed out by Judge Farrington in the 1908 case (165 Fed., 691), this method of arriving at the value of Complainant's properties is subject to numerous objections, among which are that "There may be other equivalent substitutes which are cheaper."

The testimony discloses that several other substitutes are available for the use of San Francisco. Mr. Schussler testified:

"XQ. 1962. Do you consider there is any likelihood of water being brought in from any place else?

"A. *Oh, I do not know. You can bring in water from the San Joaquin, and pump it. There are a number of places of that kind—particularly the San Joaquin and the Sacramento.*

"XQ. 1963. Have you made any estimate of what it would cost to bring in water from the San Joaquin?

"A. No, sir. I made some crude estimates about 30 odd years ago.

"XQ. 1964. But not recently?

"A. No, sir; perhaps it would be difficult to filter the water and give it an absolutely first-class taste" (p. 1978).

And again:

"XQ. 3599. Do you consider the fair method of arriving at the value per million gallons of the Calaveras reservoir by

comparing with what it would cost to bring the same amount from the Tuolumne?

"A. Yes; because there is no other place I know of that it could be brought from so conveniently *unless you bring it from the Stanislaus or some other river*" (pp. 2404-5).

And again:

"(A. to XQ. 3939.) If you could introduce the same amount of water from another source with the same safety, the same quality, the same pressure, and with the same facility of future increase for less money than you could from the Tuolumne, then these works would be worth proportionately less in comparison. . . .

"XQ. 3943. Do you consider that value fluctuates or changes by the ease or facility or needs of bringing water from some place else to the city?

"A. It certainly would—not the constructed works but the combined value of the property; its properties, reservoir sites, water rights, etc., combined as a unit if you could produce the same service from another source for either less or more money" (pp. 2490-1).

Mr. Schuyler made the same admission:

"XQ. 882. If that is not so, if there is another cheaper way to get water in here, then your value would change, would it not?

"A. If you assume that that is true—I do not know that it is possible to get any water cheaper than that, but, if you can get a substitutional supply into San Francisco for less money than the Tuolumne system would cost, the statement you make is true, yes, sir" (p. 5628).

Mr. Grunsky in his Progress Report of Aug. 12, 1901, to the Board of Public Works, discussed other Sierra supplies as follows:

"A number of Sierra Nevada sources of supply would afford the full amount of water which, as above indicated,

should be at command when a project is adopted and works constructed. Some of these sources would supply far in excess of the amount of water necessary to be at once commanded by the city.

"From the North Yuba River at Alabama Bar in combination with the large storage facilities at the Oregon House reservoir site, without recourse to any portion of the river's low water flow, upwards of 60,000,000 gallons of water per day can be obtained.

"Water from the North Yuba, from a watershed with a population of about 3,000 should be considered in too great danger of pollution to be used without filtration.

"The conduit route for the Yuba River project is less favorable than for other Sierra Nevada projects. The submerged portion of Sacramento River, the deep, long tunnels under the straits of Carquinez and under San Francisco Bay, and the location of the auxiliary nearby storage east of the bay are undesirable features.

"Lake Tahoe is to be considered capable of yielding about 60,000,000 gallons of water per day without apparent damage to users of water from Truckee River. In making any considerable diversion in excess of this amount it must be anticipated that some interference with vested rights will be claimed and that the city should be liable for damages actually resulting therefrom.

"Storage works on Tuolumne River will make the taking of 150,000,000 gallons of water per day from that stream possible.

"Storage works on Stanislaus River at Dannell's Flat, are considered capable of yielding upwards of 60,000,000 gallons of water per day.

"Lower San Joaquin River, as a source from which to pump water for the supply of this city, presents too few advantages and too many disadvantages to be classed as an available source of supply.

"Sacramento River offers an abundance of water, which would require filtration and pumping. Unfavorable conduit route and unfavorable location of nearby auxiliary storage to assure uninterrupted service, are objectionable features,

rendering this project much less attractive and less favorable than those whose source of supply lies in the high Sierra Nevada Mountains" (pp. 225-27).

It appears from the evidence, therefore, that the Tuolumne is but one of the several possible sources from which a substitutional supply might be obtained.

But even if the proposed Tuolumne system were the only possible substitute, the value of complainant's properties cannot be controlled by the cost of that system. The reasons of this are clearly and succinctly set forth by Judge Farrington in the 1908 decision, as quoted in our discussion of the law of the case on pages 60-61 of this brief.

Mr. Grunsky enunciated the correct principle in this matter in his Water Rights Report of Feb. 23, 1901, to the Board of Public Works, as follows:

"A. I would like to read, in answer to that, what I said at that time. I will read from the Municipal Reports of 1900-01, at page 200 of the water rights report: 'No uniform rule can be laid down for the determination of the value of water rights and of lands essential for water development. Except for the fact that a private corporation has an established business (unless, indeed, it be operating under an exclusive franchise), the value of all its properties in use for the supply of water to a community can not exceed the cost of bringing in an equal supply from some other source, all conditions of service being assumed equal. The cost of bringing in an equal supply is not, however, always the best measure, nor can it in fact always be made a measure for the valuation of established works. Take the extreme case of a municipality so situated that there is but a single available source of supply; that this be owned privately, and that the cost of works for the delivery of water is nominal. Where is the limit

of the value of this water rights if determined on the basis of all the traffic will bear?' To lose it would mean complete loss of real estate and improvements and of all the various established industries and business interests dependent upon the existence of the town or city, none of which could be maintained without water. In such a case it must be assumed that the inhabitants would rather pay full value of their real estate and improvements for the water than to permit its being taken away. Such a basis of valuation is, however, entirely unreasonable, not in accord with the custom and practice of civilized communities. In this extreme case, other circumstances must be taken into consideration in determining value, even though proceedings be somewhat arbitrary in character. The cost of construction, the amounts invested in water properties, the resulting profits are then to be considered, and a fair allowance should be made for the risks at which investments were made. A comparison with other like judicious investments of the same magnitude may then lead to some conclusion as to a fair valuation. The policy should always, under such circumstances, be to compensate the person liberally who by business foresight, judicious investment or perhaps by accident has acquired possession or brought under his control the water which has become a public necessity and which has been made or is to be made a public use.

"When, however, a case presents itself in which other sources of supply are available, these can be compared on their merits. When it can then be shown that other water equal in quantity or quality can be obtained and delivered under like conditions, a comparison of cost is justifiable, but the cost of bringing in another supply should not be considered as the measure of value of the established system. In such a case the estimated cost of constructing new works will ordinarily stand as an upper limit which the value of the established system will not exceed" (pp. 332-3).

That is to say: the use of the cost of a substitutional system as a basis of comparison is not to fix a value for

the existing system, but to determine a maximum beyond which the value of such system cannot go. This is but another way of saying that the value of the water supplied by the system in use cannot be greater than what it would cost to obtain the same water elsewhere. This necessarily follows from the established principle that consumers can never be compelled to pay more than the service is reasonably worth to them. With this method of comparison of substitutional value there can be no quarrel, but when it is sought to go farther and predicate definite present value of an existing system upon the uncertainties of an unconstructed and different system, the problem is immediately removed from certainty to speculation.

Further confusion in complainant's comparisons of value upon the substitutional basis results from failure to keep in mind the fact that the Tuolumne system is designed to furnish a greater and better supply of water than is at present furnished by complainant.

A final objection to this method of valuation is the uncertainty of the estimates of the cost of the proposed system. As is shown on page 306 of complainant's brief these estimates vary from \$39,531,000 to \$55,000,000. It is absolutely impossible to determine from the evidence with judicial certainty which of these conflicting estimates is correct.

BASES OF ESTIMATES OF OTHER WITNESSES FOR COMPLAINANT.

We now return to the consideration of the bases of estimates of the remaining witnesses for complainant.

MR. SCHUYLER'S METHOD OF VALUING THE LANDS, WATER RIGHTS AND RIGHTS OF WAY.

That Mr. Schuyler's method of valuing the lands and water rights was exceedingly cumbersome, indefinite and uncertain, is amply proved by the following.

He ascertained that the total cash investment in the works was:

Up to December 31, 1879. (Page 5449.

This is erroneous. See pages 192 and

193 of this brief)\$13,168,693

Annual Reports to Board of Supervisors

show amount expended in construction

from 1879 to January 1, 1904, to have

been (p. 5450) 17,242,050

Total cash investment (p. 5450) 30,410,000

Deducting therefrom his estimate of the

structural works in round figures

(p. 5450) 17,924,000

Leaving remainder of\$12,486,000

“Remainder represents the total investment in real estate, water rights and abandoned structures” (p. 5450)	12,486,000
Less abandoned structures (p. 5450)	947,000
	<hr/>
“Approximate Investment in real estate and water rights” (p. 5450)	\$11,539,000

Having obtained this figure as the original cost of the lands and water rights, which it will be noted is more than double the cost of the lands, water rights and rights of way as given by Messrs. Brooks and Dockweiler on Table No. 4, Mr. Schuyler proceeded to estimate the cost of the proposed Tuolumne System as follows:

Mr. Grunsky's estimate (p. 5451)	\$39,531,000
Additions for interest during construction, difference in cost of pipe, concrete conduit and increase in capacity of Belmont Pumps (p. 5451)	15,365,000
	<hr/>

And gave total cost of the proposed Tuolumne System as (p. 5451) \$54,896,000

Mr. Schuyler then made deduction from his estimate of the Tuolumne system for allowance included by him for real estates plus interest (p. 5452)	2,317,000
	<hr/>
(p. 5452)	\$52,579,000

Forward \$52,579,000

From which he deducted
the amount previously
obtained by him as the
total cash investment in
the works of..... \$30,410,000

And Loss of Interest in es-
tablishment of business,
which is shown by Table
No. 1 to be a false quan-
tity (p. 5450)..... 5,671,509

36,082,000

Leaving a balance in round figures of
(p. 5452)\$16,497,000

This figure, to use Mr. Schuyler's own words, "may
"be taken as in a measure giving a rough indication
"of the probable increase in value of the real estate
"and water rights since they were purchased, as shown
"by comparison with the cost of obtaining an equiva-
"lent supply" (p. 5452).

To obtain the present value of the lands and water
rights, Mr. Schuyler added the figures previously ob-
tained of:

Approximate Investment\$11,539,000
Increase in Value..... 16,497,000

(p. 5452) \$28,036,000

This figure of \$28,036,000 represents Mr. Schuy-

ler's valuation of the lands and water rights and appears on Table No. 4.

While this method differs considerably from that adopted by Mr. Schussler, it is also based on a comparison with the estimated cost of the Tuolumne system, and is subject to all the objections which can be urged against that method of valuation. As pointed out in the decision in the 1908 case, it is also dependent upon the correctness of his additions of \$15,365,000 to the Grunsky estimates of the cost of the substitutional system (165 Fed., 690).

On cross-examination Mr. Schuyler testified:

"XQ. 171. Your idea is that the cost should determine the amount of water rates that should be paid here by determining a valuation which you fixed by estimating the cost of a system that you say is not a good one, without reference to or any investigation of any other system to determine whether it would be cheaper or greater, and fix the value of its lands and water rights entirely upon an estimate of one system that has not yet been built?

"A. In view of the subject, I have simply accepted the estimates of the City Engineer as having been so complete as to indicate that that was the cheapest and best substitutional system and that it was unnecessary to look further, and that the cost indicated by that substitutional system was, in a general way, an index of what the value of the water rights and lands of the company was, or are now.

"XQ. 172. You did not accept Mr. Grunsky's figures, did you?

"A. I could not accept his figures when they were manifestly too low on the two principal items; I did not go further into his estimate.

"XQ. 173. If the Court accepts Mr. Grunsky's figures on the cost of the Tuolumne system and should accept this theory, the Court would get one value for the lands and water

rights of this corporation, and if it should accept yours it would get another, would it not?

"A. I don't understand that the Court is required to go to Mr. Grunsky's estimate to determine the value of the lands and water rights in this case.

"XQ. 174. You have made up your testimony entirely from Mr. Grunsky's estimate, increasing them in certain particulars which you think proper; supposing the Court should accept Mr. Grunsky's figures instead of yours, then, the Court would get a different value from what it would get if it accepted your figures, would it not?

"A. If the Court did not agree with me it would agree with somebody else; of course there would be that difference, whatever the difference between my figures and somebody else's might be" (pp. 5501-2).

Mr. Schuyler adopted this method of valuing real estate and water rights because he was unable to arrive at the amount of original investment in these properties (p. 5449). The method he believes proper and which he would have preferred to have followed is given by him in answer to Q. 228 on pp. 5447-8, as follows:

"My view of the proper method of making a valuation of any water works plant for rate fixing purposes, assuming that the rate fixing powers have always given it sufficient revenue to maintain its efficiency and serviceability over and above a fair rate of interest on the capital invested, is to determine first cost from the book records, if that be possible, or to reach such a conclusion as to probable first cost if the records do not give complete information by other means derived from experience and local data as to market values of labor and materials during the period of construction, and to the figures so derived add the reasonable increase in value of the real estate and water rights since their original acquisition, and also the value of the business as a going concern, deducting from the total, the cost of the abandoned works."

MR. ADAMS' BASIS OF ESTIMATE.

Mr. Adams based his valuations on several considerations given by him as follows:

First: The plant of complainant is of such a character as to enable it to properly fulfill its obligations to the city (p. 4728-9).

Second: Cost is one of the most important factors in determining value (p. 4730). From the testimony of Mr. Reynolds, Mr. Adams deduced several different amounts as the cost of complainant's properties, as follows:

(1) Direct contribution of stockholders (p. 4734)	\$ 9,177,496.82
Realized from out- standing bonds (page 4734. This is par value, not cash re- ceived)	15,975,000.00
Excess of computed in- terest (compounded annually) over and above dividends paid (page 4734)	25,361,226.16
Total Investment (p. 4734)	<u>\$50,513,723.00</u>

Table No. 1 proves that the stockholders of the Company received much larger dividends than they would have if their money had been invested in other channels, and that the excess of interest over dividends, as given by Mr. Reynolds in Complainant's Exhibit No. 104, is a false quantity. The true investment value as shown on pages 171 and 172 of this brief is \$26,699,018.07, covering all properties, and \$22,053,573.98 for those in use and useful.

(2) Exhibit filed with Supervisors,

Dec. 31, 1879—

Expenditures. (This is
erroneous. See pages

192-3 of this brief) . . . \$13,168,693.00

Loss of interest in es-
tablishment of busi-
ness. (Shown by Ta-
ble No. 1 to be a false
quantity)

5,671,509.00 \$18,840,202.00

New construction since
December 31, 1879 (p.
4735)

17,602,003.00

Total cost at January
1, 1904 (p. 4735)

\$36,442,205.00

The cost of complainant's properties is shown on page 92 of this brief to have been as follows:

	Properties in Use and Useful.	All Prop- erties.
Mr. Reynolds	\$22,270,687.70	\$26,916,131.79
Mr. Wenzelburger.	22,279,689.23	26,925,133.32

(3) Total realized from sale of stocks and bonds (p. 4735; as per Mr. Reynolds) . .	\$25,152,497.00
Less abandoned struc- tures	807,808.00
	<hr/>
	\$24,344,689.00
Earnings re-invested and cost of establish- ing business, as per Mr. Reynolds.	11,828,917.00
	<hr/>
Total cost (p. 4737) . .	\$36,173,606.00
	<hr/>

These figures given by Mr. Adams are entirely erroneous, as shown in previous sections of this brief.

Mr. Adams found the apparent cost of real estate, water rights, etc., by deducting from his total investment \$36,442,205.00

Less interest lost in establishing business. 5,671,509.00 \$30,770,696.00

His estimate of the probable cost of the structural portions of the plant (p. 4738) \$16,870,445.00

Leaving as apparent cost of real estate, etc. (p. 4738) \$13,900,251.00

Third: The acquisition of the present water works has been characterized by a reasonable degree of prudence and engineering skill (pp. 4738-4743).

Fourth: Policy of rate fixing authorities has not made sufficient allowance for depreciation, nor for income upon properties acquired for future use (pp. 4743-4749).

Fifth: Reduplication of present structural works would not be materially different from their actual primal cost (p. 4750).

Sixth: Construction of substitutional works would cost not less than \$47,556,000 (pp. 4726, 4750-1).

Seventh: Real estate and water rights and privileges of the company have increased in value since their acquisition. "Just what this value is, is ultimately allied with the question of the value of the service rendered to the consumer, a question which I will hereafter discuss" (p. 4754).

Eighth: "Under the system of regulation of rates by the State, no value need attach to franchise either for purposes of taxation or revenue" (p. 4755).

Ninth: Established business value is ascertained by the losses during the early history of the plant. In this case \$5,671,509 (p. 4757). (Note:—These losses did not occur. See Table No. 1.)

Tenth: "The worth of the service to the consumers will always fix a maximum beyond which no theory of value, however reasonable it may otherwise appear, can be followed" (pp. 4757-8). This value is dependent upon:

1. Service is not worth more to any consumer than it will cost him to secure an equivalent supply from a well or some other source (p. 4758).

2. Service is not worth more than consumer can afford to pay interest upon without impairing general prosperity and without checking municipal growth (p. 4758).

“When one attempts an inquiry as to the value of the service rendered in any specific case, he finds himself, however, without any positive standards” (p. 4759).

“Water service in San Francisco must be expected to cost as much or more than in any other large city in the United States; and again, because of the large necessary investment it might not be practicable to earn so high a rate of interest as otherwise, since the value of the service might not permit it” (p. 4760). The present rates in San Francisco are exceeded in many cities. Property values in San Francisco have enhanced in value. It is therefore evident that the revenue derived from the present schedule of rates does not “approach the limit which it would be easily practicable for consumers to pay” (p. 4760).

Mr. Adams then analyzed the statement of the revenue and expense of complainant for the year 1904, and concluded that the City and County is not paying a sufficient sum for water furnished to it, and that private rate payers are bearing too large a share of the burden. He then concluded, and this is the final key to his elaborate labyrinth of theoretical value, as follows (pp. 4766-7):

“From the before stated comparison of rates charged in other cities, and this analysis of the company’s present revenue and expense it is evident that by a proper distribution of the cost between private rate payers and public taxation and by advance of the rates along carefully considered lines, the amount of the company’s gross revenue could be increased 40 per cent to 50 per cent if need be, without exceeding any reasonable limitation imposed by the value of the service to the consumer.

"If 40 per cent advance were made the net revenue after deducting for operation and taxes, would be:

"(\$3,097,000—\$920,000)\$ 2,177,000

"If a deduction of 1 per cent of an investment of \$25,152,000 as a contribution to a renewal and abandonment fund is made amounting to..... 251,500

there would remain a net profit of.....\$ 1,925,000

or 5 per cent on a capitalization of.....\$38,510,000

"If 50 per cent advance were made in the rates, these latter figures become, on 5 per cent basis of capitalization\$44,690,000

"An increase of rates up to these limits would apparently be within the realm of precedent and reasonably certain forecast as to probable consequence, but there is room for grave doubt as to the propriety of imposing a still higher rate. The value of the service therefore, at this time, in my judgment, limits the value of the works to a sum not exceeding \$45,000,000 if 5 per cent net interest is allowed."

On cross-examination Mr. Adams summarized his theories of valuation as follows:

"A. . . . The value of the system, on the basis of investment plus the increase in the value of real estate and water rights since their acquisition led to \$50,000,000, in round numbers, but that valuation I have not given as the value for rate-fixing purposes because, in my judgment, it is materially less than that because of the limitations imposed by the value of the service.

"XQ. 1521. What is your figure?

"A. My figure is from \$40,000,000 to \$45,000,000.

"XQ. 1522. Leaving that indefinite as to anywhere between those two figures?

"A. Yes, sir.

"XQ. 1523. How did you get those figures?

"A. In the first place, I have determined, as before outlined, that the company's actual investment was in the neighborhood of \$35,000,000 to \$36,000,000. In the second place, I have determined that the cost of a substitutional equivalent

would be somewhere in the neighborhood of about \$50,000,000. In the third place, I have determined that the value of the service rendered limits the value of the works, for rate-fixing purposes, to a sum not exceeding \$45,000,000, and from a consideration of these three factors I conclude that the reasonable amount which should be allowed as a valuation for rate-fixing purposes should not exceed \$45,000,000, and in my judgment should not be less than \$40,000,000, but that it should lie between these sums.

"XQ. 1524. Why not less than \$40,000,000?"

"A. If the company's investment is substantially \$35,000,000 or \$36,000,000, and if the study of the increase in the value of its water rights and real estate used as water producing property shows such increase to amount to about \$15,000,000, that is, the difference between \$35,000,000 or \$36,000,000 and \$50,000,000, it is evident that this increase in value should very largely, if not in its entirety, accrue to the benefit of the water company. Because, however, of its being inexpedient, in my judgment, to place the value as high as \$50,000,000 on account of the limitation which the value of the service imposes of not to exceed \$45,000,000, I reach the general conclusion that in the vicinity of from \$40,000,000 to \$45,000,000 represents the reasonable value, for rate-fixing purposes, which may be imposed without any undue stress upon the rate-payers and which, so far as the company's interests are concerned, considering all these questions, represents the amount which the property is reasonably worth.

"XQ. 1525. Then, you do give the figure of \$15,000,000 as the increased value of the properties, do you not?"

"A. As I stated a while ago, I give it reached from a study of the cost of a substitutional equivalent, but I do not include this \$15,000,000 in its entirety in reaching the valuation which I give for rate-fixing purposes. Instead of \$15,000,000 it would be an equivalent of from \$5,000,000 to \$10,000,000 because of the limitations imposed upon value by the value of the service rendered to the consumer.

"XQ. 1526. Which you think would be about 50 per cent greater, that is, it would stand 50 per cent greater?"

"A. If I remember rightly my figures are from 40 per cent to 50 per cent.

"XQ. 1527. Your theory, boiled down, is that the company should be allowed an income upon what it would cost to bring in a substitutional supply, limited by the theory of all the traffic would bear?

"A. Oh, no, I could not accede to that at all. Your question involves the assumption of certain principles to which I could not assent.

"XQ. 1528. Which ones do you not assent to?

"A. I do not like that expression of all the traffic will bear. It has no application in this matter.

"XQ. 1529. Well, it is about as much as the people ought to pay, what they can afford to pay, is it not?

"A. Rather what they ought to pay, with full regard as to their ability to pay and to the rights of the company supplying water.

"XQ. 1530. And that is a matter of judgment, is it?

"A. Within certain limits it is. My assumptions I consider as being entirely within the safe limits" (pp. 5241-43).

And:

"A. . . . I do not attach importance myself to the cost of a substitutional equivalent, so far as it applies to structural works which are separate and apart from the question of water supply; it just happened in this case, as I have stated that the method you mention would reach the same result. If there is any doubt as to my meaning I will explain it in a word: had all of the information been available in this case which I should have desired in order to make a direct application of my views as to how value should be determined for rate-fixing, I would have taken the actual investment in all of the company's properties which are reasonably and properly inclusive in the determination of value; I would have, in addition, ascertained the increase in value of the real estate and water rights since their acquisition; I would have allowed the company either the whole or at least a large part of that increase; I would have then ascertained whether or not the value of the service rendered constituted

a limitation upon the result as secured; if it constitutes a limitation, then the value of the service would finally determine the amount. It transpired in this particular case that there were no means by which I could directly ascertain the amount of increase in the value of real estate and water rights of the company because I had no means of ascertaining what their cost was. In the absence of that information I was able to meet the difficulty by estimating the probable cost of the structural features of the property and by deducting that from the estimated cost of a substitutional equivalent I was enabled to find out what the value of the real estate and water producing properties was, so that having the value of the substitutional equivalent and deducting from that the investment I determined what the increase was. It was a roundabout way of accomplishing what would have been reached directly had I been in possession of complete information of what the actual cost of the company's real estate and water right properties was. Present value of real estate and water rights is made up of two elements in this case, their cost plus the increase in value. Not having the original cost I jumped right over that and went at once to a determination of their present value on the basis of a substitutional equivalent and thus reached the information which I was after by a method which was not exactly in line with my preferred method of making application of my theories of value.

"XQ. 1538. What did you get for the present value of the lands and water rights?

"A. I could not completely segregate it because of this lack of information of cost, so I reached the result by making an estimate of the cost of a complete substitutional equivalent for all works of water supply and the conduction up to the distributing system, and to that I add my estimate of the actual cost of the various structures, pumping plants, pipe line, etc., constituting the distributing system in the city of San Francisco. It was one way of accomplishing what I otherwise would have been able to accomplish in a different way had I known the actual investments in real estate and water rights" (pp. 5246-47).

Mr. Adams again admitted the uncertainties of his estimates when he said:

“It is still an open question as to just what the value of a water works property is. I do not presume that very many men acting independently will reach exactly the same valuation. It would be a matter of coincidence if they did. One may expect that the differences would be more enormous, still it is not worth while expecting that valuations made by different parties acting entirely independently would coincide at all” (p. 4931).

It will be noted from the foregoing testimony that Mr. Adams' valuations are computed on only three possible bases, viz:

(1) Original cost varying from \$36,173,606 to \$50,513,723 according to the amount of fictitious loss of interest included in the computations;

(2) The estimated cost of a proposed substitutional system; and

(3) His judgment of the value of the service to the consumer.

These matters are discussed elsewhere in this brief at greater length. The purpose of this review is to show that there is nothing in Mr. Adams' theories upon which the Court can base a finding of total value. He attempts no independent appraisalment of the complainant's properties, other than of its structural portions. His computations of cost and investment are unreliable on account of the inclusion of large amounts of alleged but unsuffered losses; and further because his other figures

are inaccurate, as shown on Table No. 1 and pages 192 to 194 of this brief. His final basis of value is his judgment of the reasonable value of the service, notwithstanding his own admission that he "finds himself without any positive standards" in that matter. His opinion is that the consumers in San Francisco can afford to pay from 40% to 50% more for water than the present rates. Why not sixty or seventy-five per cent? Why more than fifteen per cent, as found by Judge Farrington for temporary purposes in the 1908 case? Why any per cent whatever? Mr. Adams' experience as an engineer may qualify him to make a better guess on this subject than many another witness, but the fact remains, as admitted by him, that such an estimate is a mere matter of judgment. Can it be that the presumption of the validity of the ordinance rates is overcome by the opinion of an engineer that San Francisco water consumers can afford to have their rates increased from forty to fifty per cent before appreciation of real estate values is arrested, or municipal progress checked? Is this Court assisted in finding a definite value of Complainant's property by that line of evidence? As an academic discussion, Mr. Adams' testimony is exceptionally learned and interesting; as a basis of value, it is theoretical, uncertain, indefinite, confusing and unconvincing.

Upon cross-examination he admitted that if his premises are in any respect unfounded, the problem is plunged into further confusion and uncertainty. He said:

"If it can be shown that the net interest returns upon the actual investment in the properties of the Spring Valley Water Company, after paying all operating expenses, taxes and all proper charges necessary for the maintenance of the property, have been sufficient to net the company a rate of interest co-equal with the rate of interest paid on commercial loans in San Francisco during that period and had, as implied by your question, been sufficient, in addition thereto, to more than twice reimburse the company in the investment in the Calaveras dam site. I think it would have an important effect in determining the amount which should now be allowed the company in the fixing of rates.

"XQ. 1482. What effect would it have?

"A. Do you mean by that question the degree or the principle?

"XQ. 1483. The nature of the effect?

"A. It would have the effect of giving the city a greater claim upon the increase in the value of real estate and water rights than it would otherwise have. I predicate this answer upon my view as to what constitutes fairness in the determination of rates rather than upon any consideration of court decisions concerning this question.

"XQ. 1484. To what degree do you think the city would be entitled to share in the enhanced value, if that were so?

"A. I do not think I can answer that question as to the degree. The problem would be a very important one not to be lightly or hastily solved. As I have stated before, in the determination of value for rate-fixing I do not think there is any formula which can be deduced which admits of general application. The result would simply be this in principle, that if the water company is entitled to a return always upon a sum not less than its necessary investment—when I say 'investment' I mean also to include the going value as measured by early losses—and if the water company is entitled to receive an additional amount because of the increase in value of real estate and water rights since their acquisition, the problem which would confront one under your query simply relates to the division, if any, as between the water company and the public in the disposal of this increase in value of real estate and water rights; that is, as to the proportion

which might properly be assigned to each in determining what would be a fair and equitable valuation. I do not think I can say just on the moment in just what ratio under such circumstances this increase in value should be divided as between the two. To some extent it would no doubt be influenced by the consideration, in addition, of the value of the service rendered, that is, any limitation upon the otherwise value of the property which may be imposed by the value of the service rendered. If in the present case, as I have concluded, the company has an investment reasonably and properly made of \$35,000,000 or \$36,000,000, and if the increase in value of real estate and water rights amounts to \$15,000,000, and if the value of the service rendered makes it inexpedient to allow, in the fixing of rates, a greater valuation than say \$45,000,000, it seems clear that if the company had been dealt with in the manner which you have assumed in your question that in the determination of the value for rate-fixing purposes one would be justified in approaching the \$35,000,000 or \$36,000,000 more closely than under the conditions as I deem them actually to exist. Just how much more closely is a matter of individual judgment, a matter of discretion, without perhaps any possibility of assigning a logical reason as a justification for any definite amount that one might mention" (pp. 5227-29).

The controlling force of Mr. Adams' idea of the value of the service to the consumer upon his final estimate, is again shown in the following testimony with regard to the Calaveras properties:

"XQ. 479. Do you know what the cost of that was to the corporation, the value of those lands?

"A. No, I have not it in mind.

"XQ. 480. They cost the corporation about \$50 an acre and they never have been used. Their estimated present value, according to the testimony of the chief engineer of the Spring Valley Water Company, is some \$1500 an acre. You consider, do you, that the property which cost one-thirtieth of what it is estimated to be worth to-day should bring

the company an income upon its present value although it has never been used?

"A. Yes. As a matter of fact, in the determination of value of the works in question, those properties have cut no figure in reaching the result because other controlling factors have entered in which limited the value of the property to a lesser figure than would be reached by the inclusion of these properties unused. But, as a matter of principle and justice in the determination of values, unless such factors do enter into the value of the property, I consider such properties that are acquired, such as the one you mentioned, for future use should be included.

"XQ. 481. You did not include the Calaveras properties in your estimate?

"A. No.

"XQ. 482. You omitted them purposely?

"A. They did not enter into my method of determining the value of the property. I think it is quite clear that the value of the service rendered to the consumer limits the value of the entire property to a lesser sum than would be reached by the inclusion of all of these properties if the value of these properties be measured by the cost of acquiring other properties of equal value or equal suitability for the purpose for which they are required. In a way I have considered them and perhaps may be said to have included them. In giving weight in my final conclusions to the evidence of Mr. Reynolds as to the actual investment in the property, those figures of actual investment doubtless include expenditures made in the acquisition of these properties you speak of" (pp. 5002-3).

MR. RUDOLPH HERING.

Mr. Hering divided complainant's properties into a tangible part, consisting of structures, lands and water rights, and an intangible part or business value (p. 3440). His method of arriving at the value of lands and water rights was given by him as follows:

"Q. 254. In making a valuation, Mr. Hering, of the lands and water rights of the Spring Valley Water Company, what would be, or what are, rather, your premises as to estimating their present value? If you have more than one class of premises, or adopt and use more than one class of premises, please state them both or all?

"MR. PARTRIDGE—I object to the question as immaterial, irrelevant and incompetent and not within any issue made by the pleadings; upon the further ground that the subject of value is not a subject of expert testimony, nor has the witness qualified as an expert on values.

"A. As it is difficult to ascertain the actual present cost of this class of property because it can no longer be replaced by other lands or water rights in exactly the same location, the value should be estimated in accordance with the general market prices existing to-day of similar property in similar localities. Such an estimate should, of course, be fair, without taking undue advantage of the exclusiveness of any possession.

"MR. KELLOGG—Q. 255. If no similar properties should exist in similar localities and adapted to the use of a water supply, which similar properties you might use as an estimate of the value of these properties, then what would you take as a basis of valuation?

"MR. PARTRIDGE—I object to the question as not properly hypothetical or based on anything in evidence or true concerning the properties of complainants or either of them; on the further ground that it is immaterial, irrelevant and incompetent; on the further ground that value is not a subject

of expert testimony, nor has the witness qualified as an expert on value.

"A. I should then feel compelled to unite the value of the water rights with what I would call the business value of the property and determine their value as one element, or, rather, jointly.

"MR. KELLOGG—Q. 256. That is, in combination?

"A. In combination" (pp. 3456-7).

And:

"Q. 267. What governs the value of water courses or water sources of supply?

"MR. PARTRIDGE—I object to the question as not a proper subject of expert testimony, nor is the witness qualified as an expert.

"A. I should say, first, the existence of a sufficient quantity of water; second, the adaptability and competition for its use for various purposes; and, thirdly, a community that can make use of it. If there was no community to use it, no value can attach to the water on that account. Large and growing communities exist in this neighborhood, and all will require water. It is a well known fact that the quantity of usable water is limited in this part of the State, and it is fixed in quantity, not increasing with or bearing any relation to the growing population. It is therefore clear that water, being limited in quantity and indispensable for this city and the adjoining communities, has, when it is diverted, an intrinsic value as property above the mere cost of diverting it. One measure of this value may be obtained from the cost of the least expensive water supply among other than your own sources, and equally good and abundant both at present and in the future. Such measures would indicate, in my opinion, a maximum price beyond which its value can not reasonably go. Another measure of this value is the reasonable actual cost of procuring the water rights and of having held them until required for the supply of the city. This would indicate the least price which should be paid for them. The true value of the water sources would, in my opinion, be found between those two limits."

"MR. KELLOGG—Q. 268. Why between these two limits?

"MR. PARTRIDGE—The same objection.

"A. Because the minimum value—I thought I stated why the minimum——

"MR. KELLOGG—Q. 269. (Int'g.) What I mean is, I understood you to say that the real value, the true value which ought to be allowed, in your judgment, was between a minimum and a maximum. You placed the minimum value, as you stated there in your testimony, and you placed a maximum value, as you stated in your testimony. Why would there be an average taken by you between these two values? That is what I want to get at.

"A. I did not say that it was an average, generally speaking. What I mean is that it would not be fair, and just to give a value less than obtained in the way I stated, and I also think that it would not be just to give a value higher than the maximum value that I stated. Therefore, other conditions must come in by which the true value between these sums can be determined. Those elements which would influence my own opinion in this matter would not be purely engineering, but would be general business considerations; it would be largely a matter of judgment."

"Q. 270. Would you apply, and if so, how, these principles or considerations to the business value of the entire plant, and, if other principles should be added to those which you have already mentioned, which you referred to as business principles in your valuation, please give them, and your reason for your further answer?

"MR. PARTRIDGE—I object to that as immaterial, irrelevant and incompetent and not a subject of expert testimony by an hydraulic engineer.

"A. As a fair competition is the best adjustor and regulator of business values, so I think also here, the highest value of your business, as I said before, would be approximately measured by the capital which would have to be invested in the most available of the remaining projects for supplying San Francisco with an equally abundant source, present and future, of equally good water, built with the same good design, of the same materials, and with equally good labor, and be just as reliable in its service. The lowest value,

again, would not be less than the actual present cost of procuring and holding the land and water rights, and of building the entire works as they exist to-day. The true value of the business property, as I said before, should lie between these two limits and, as a matter of judgment, depending on various considerations. There is an element of value in the fact that the property, by the topographical character of its sources, can be extended gradually instead of requiring dams and aqueducts of dimensions not necessary for a long time and, consequently, loaded with a large investment which must be unprofitable for some time, examples of which we have in many cities. This advantage is certainly of value and should be considered when fixing the final valuation between the limits I have stated. The advantage from this element is not to be considered, however, as militating against an early investment in lands and water rights ultimately required. The expense of the latter is very small when compared with the price of later purchases" (pp. 3460-3).

In stating a second time his basis of valuation, Mr. Hering showed the distinction between his method of arriving at the valuations of the tangible and intangible portions of the property:

"The tangible value I found to be \$39,770,900; the intangible value I have estimated at \$5,000,000" (p. 3472).

"In my judgment that is a fair and reasonable value, and, therefore, I would say that, in my opinion, it should be valued at about that figure" (\$45,000,000) (p. 3473).

Mr. Hering's estimate of intangible value is arrived at by taking one-third of the difference between his estimate of the cost of the Tuolumne system and his valuation of the tangible properties (p. 3476).

He admitted that this value "would be wiped out" entirely if conditions were such that the work could "be replaced by another at a less cost" (p. 3716); and

that the comparison must be made with the least expensive substitute (p. 3992).

His figures as to the value of the different structural portions of the system are taken mainly from Mr. Schussler's testimony and information furnished by him (pp. 3721-3725). For lands he adopted the figure of \$1,500 per acre for reservoir sites, and \$100 per acre for water-shed lands (p. 3726); and for water rights \$150,000 per million gallons (p. 3727), which figure is taken from Mr. Schussler's testimony (p. 3859), and is applied to the maximum capacity of the works,—35,000,000 gallons (p. 3860).

Mr. Hering valued Lake Merced itself as a natural distributing reservoir at \$1,856,000 (pp. 3727-9). The lands under the water of the lake he valued at \$1500 per acre, and the lands surrounding the lake at \$100 per acre (p. 3728).

In New York, in 1903, Mr. Hering estimated the value of the Stormville reservoir site, within forty miles of New York City, including buildings, at \$200 an acre (p. 3881). His value of the Ashokan reservoir, seventy-five miles from New York City was \$20 per acre (p. 3893).

Mr. Hering admitted that in his estimate on rights of way he accepted Mr. Schussler's figures (pp. 3722-3).

Mr. Hering again summarized his method of valuation thus:

"In this case I will say, because in my opinion, and I think I have already stated that several times, the method of de-

termining the actual value between the minimum and the maximum should be based upon judgment; chiefly upon business considerations. In this case I think that the value should be nearer the minimum than the maximum value. I did not consider that it made much difference whether the Tuolumne proposition would cost \$50,000,000 or \$60,000,000. I concluded, as I have already stated, at least once, that, in my judgment, the intangible value, which is the value to be added to the tangible to get the total result, would be about \$5,000,000 and I struck the round figure of \$45,000,000 in that way. It would have been the same if I had estimated the Tuolumne at \$55,000,000 or at \$50,000,000. For that reason it was a waste of time, in my opinion, to go into great details so long as I was pretty near the result. When you get into the fifty millions two or three or five millions do not amount to much for the purpose for which I used that estimate" (pp. 3818-19).

Mr. Hering added about fifteen and one-half million of dollars to Mr. Grunsky's estimated cost of the Tuolumne system before using it as a basis for his own figures. The uncertainties upon which these values are based are shown by the following cross-examination:

"XQ. 2024. Did you find, other than the question of prognostication regarding population and the cost of making pipe, any other details in which you disagree with Mr. Grunsky?

"A. I think Mr. Grunsky under-estimated the cost of laying the pipe.

"XQ. 2025. What information did you have which led you to that conclusion?

"A. My judgment alone. It seemed to me that along the proposed pipe line you would have to build roads for the purpose of hauling the pipe to the places, as I was informed there were no roads there and there are not likely to be along the pipe line; the roads would have to be kept in repair and the hauling would have to be very long because it would not pay to build a steam road for that purpose. Considering

the difficulties, so far away from a convenient point, I rather think that Mr. Grunsky under-estimated the cost. In the State of New York it is very convenient to lay pipes of that kind along the line where we had proposed; the roads go almost anywhere, steam roads go almost everywhere; the roads are good; the hauling would be short and the difficulties as I see them, of laying the pipe were very much less than what they would be here.

"XQ. 2026. You know also, do you not, that Mr. Grunsky estimated the cost of laying the pipe at very much more than is estimated in the State of New York?

"A. Yes, but I hardly think it was enough; that is a difference of opinion.

"XQ. 2027. You know also, do you not, that he had personally inspected the route over which the pipe was to be laid; are you aware of that?

"A. If he said so, I believe it.

"XQ. 2028. You never personally inspected it, did you?

"A. No, sir.

"XQ. 2029. Do you know also that he had made very careful estimates and worked out to the minutest detail the roads he would have to build, the distance he would have to haul his pipe and the kind of transportation that would be necessary, which he has embodied in sets of figures down to cents; do you know that?

"A. I presume that he would make such an estimate.

"XQ. 2030. In view of the fact that Mr. Grunsky went over the entire proposed route himself with gangs of men under his supervision, in view of the fact that he examined the nature of the soil from the point of the proposed intake, clear to the City of San Francisco, in view of the fact that he worked out down to these minute details the entire length of this conduit, would you say that your judgment, based merely upon an examination of the plans and specifications, was better than his who had worked this matter all out?

"A. I would not make any comparison of that sort. I would say that my own judgment was the best I could give. I want to say a further thing, that from the very fact I had not examined the location and had not examined some other things that I should have liked to examine, what-

ever they may have been, I constantly said to myself I will add nothing more to the estimate of Mr. Grunsky's cost but this item for an additional cost of the pipe; should that be greater than it really would turn out to be, then, the difference is covered fully, in my opinion, by the other matters which Mr. Grunsky did not estimate on at all and for which I also made no estimate whatever" (pp. 3802-04).

MESSRS. A. S. BALDWIN AND CYRIL WILLIAMS, JR.

For the purpose of proving the value of its San Francisco properties, complainant called Mr. A. S. Baldwin, a real estate expert, who testified as to his estimate of the value of the several parcels. The figures appear in Table No. 4. With reference to these estimates two facts appear:

First, the values given for many of the reservoir properties are in subdivisions, i. e., for sales in that form. It is held in the 1908 case that,—

"If the company sees fit to use for the mere catchment of water, lands which are much more valuable for other purposes, it is unreasonable in fixing rates to appraise such lands for more than they are worth as watershed areas" (165 Fed., 698).

By a parity of reasoning, if the company sees fit to use for reservoir sites, lands which are more valuable for sale in subdivisions, it is likewise unreasonable in fixing rates, to appraise such lands for more than they are worth as reservoir sites.

Second, the values of most of the reservoir sites are given "after the grading," which Mr. Baldwin explains

to mean that the cost of grading in each case is to be deducted from the values given by him (Q. 13, p. 5753).

For the purpose of proving the cost of grading, the complainant called Mr. Cyril Williams, Jr., one of its engineers, who gave detailed figures as to the cost of grading each parcel. His figures appear in a separate column on Table No. 4. It is remarkable that in several instances the cost of grading, as given by Mr. Williams, exceeds the total value as estimated by Mr. Baldwin. For example (see Table No. 4) :

University Mound Reservoir Tract:—

Mr. Baldwin's total value.....\$38,300

Mr. Williams' cost of grading..... 90,000

College Hill Reservoir Tract:—

Mr. Baldwin's total value.....\$ 40,800

Mr. Williams' cost of grading..... 108,700

Market Street Reservoir Tract:—

Mr. Baldwin's total value.....\$281,300

Mr. Williams' cost of grading..... 360,000

In other words, each of these properties will cost much more to grade than it is worth. The total value of reservoir sites, of which the cost of grading is given is, according to Mr. Baldwin.....\$1,318,750, and the total cost of grading the same, according to Mr. Williams is..... 869,500, thus reducing the estimated value of these reservoirs to 449,250.

The details of these estimates, with pages of the testimony where the same are found are given in table No. 4.

ALLEGED INTANGIBLE VALUES.

Complainant claims an additional value to its properties on account of elements or characteristics commonly designated as intangible values.

These are now considered under the following headings:

- (1). Franchise,
- (2). Going Business,
- (3). Unit Value,
- (4). Mr. Hering's Intangible Value.

FRANCHISE.

In the discussion of the legal principles in this case in a prior portion of this Brief, we have endeavored to establish that upon principle and authority no separate or additional value should be given to the franchise of complainant for rate fixing purposes.

Whatever view may be adopted as to this close and perplexing question of law, it is manifest that, in this case, no additional allowance can be made for franchise value for the reason that no such value has been proved. If all that is claimed by complainant's counsel as to its right to be allowed for franchise value be conceded for the purpose of argument, the question still remains: "How is the Court to arrive at the alleged value of the franchise?" Certainly an arbitrary amount cannot be

fixed without evidence to support such allowance. An examination of the testimony discloses that one of complainant's witnesses was of the opinion that no separate valuation should be placed on the franchise. Mr. Schuyler testified as follows:

"XQ. 6. In your opinion, should the franchise of the Spring Valley Water Company be entitled to any consideration in arriving at a valuation for rate-fixing purposes?

"A. Under the conditions prevailing here, and generally, under the Constitution of California, it does not seem to me that where the rate-fixing power is in the hands of the people or the water consumers, that the franchise proper has any special value" (p. 5460).

The same opinion is held by Mr. Fitzgerald, who testified:

"XQ. 277. Did you allow anything for franchise?

"A. No.

"XQ. 278. I believe you said this morning you allowed nothing for what is known as established or going business?

"A. No, I did not.

"XQ. 279. If those two items of going business and franchise are in law allowable as a part of the assets of the company, their aggregate sums would have to be added to your figure of \$23,000,000?

"MR. PARTRIDGE—I object to that as a question of law and as calling for the conclusion of the witness upon a question of law.

"A. If there is a franchise in this case which has to be valued, then, it certainly should be added—whatever is reasonable. I have assumed that there is no franchise and I believe that in that assumption, I am perfectly correct" (pp. 476-7).

Mr. Grunsky included franchise value in his earlier reports to the Board of Public Works, because so re-

quested by that body, but stated that in his opinion no franchise value should be allowed in this case, as is shown by the following extracts from his testimony:

"Q. 18. In that report (January 30, 1903), why do you ignore the value of the franchise?

"A. I could find no basis for a franchise value. Franchise value depends upon anticipated future profits. If these anticipated profits exceed an amount which would yield a reasonable interest allowance on the investment, the excess may be considered as representing earnings on value not covered by the capital actually invested. This excess value, when it exists, may be considered franchise value and value of the going concern. Such value is usually indefinite and uncertain. Future earnings can not always be ascertained with precision, and profits generally are even more uncertain than the earnings. It is only when a contract or agreement has been entered into, fixing a rate to be charged for the service rendered, and fixing the time during which the rate is to be maintained, that data become available for estimating these intangible values. With all the elements of the cost of rendering the service, and revenue, with all conditions affecting the same taken into account, it becomes possible to capitalize profits and to ascertain such values as a franchise value with more or less precision, but it is very different when there is no contract and no guaranteed rate at which the service rendered will be paid for. The franchise of the Spring Valley Water Company is conditioned upon the duty of the Board of Supervisors to fix water rates annually" (pp. 177-8).

And:

"There can be no anticipation of any profits in excess of a reasonable interest rate on the capital necessarily and economically invested. If there should be any excess profits in individual years it must be assumed that rates will in the succeeding year be reduced to the level intended by law. The water company is in fact the agent or trustee of the

people in the matter of supplying water. The law directs that reasonable earnings be allowed, but no more. The rates are to be such that the compensation for the service rendered shall yield a reasonable return on the investment which has been made for public benefit. The value of the water company's properties can not be considered apart from the duty of the Supervisors to fix water rates. In fixing the water rates the Supervisors are supposed to have before them a statement of the water company showing the amount of money actually expended annually, since commencing business, in the purchase, construction and maintenance, respectively, of the property necessary to the carrying on of its business. With this information before them, checked in any way that may be thought advisable, rates are to be so fixed by the Supervisors that the water company's property be not taken for public use without due compensation" (pp. 178-9).

And again:

"XQ. 114. Referring again to the Municipal Reports of 1902-03, page 251, I will ask you if you used this language:

"In reference to the franchise value which you are directed to estimate, what was said last year may be repeated. The creation or destruction of franchise value lies in the hands of the municipal authorities, because the earning power necessarily depends upon the rates fixed and franchise value is directly dependent upon the earnings.

"The franchise of the Spring Valley Water Works is not defined by any specific agreement with the city. There is not, therefore, any definite basis available for the determination of its value.'

"A. Yes, sir; I used that language.

"XQ. 115. And you estimated the franchise, in 1903, at what value?

"A. There was inserted in the appraisalment at that time an allowance for franchise value in the sum of \$2,500,000. This was simply made at the request of the Board of Public Works because they had been directed to submit an estimate of the value of the franchise.

"XQ. 116. Assuming that a franchise is an allowable

quantity in the valuation of these water works, is that sum of \$2,500,000, in your opinion, a reasonable valuation?

"A. It would be, if it were allowable.

"XQ. 117. Was it allowed by the Board of Supervisors in the year 1903 and in the year 1904 as an element or as a part of the element of their appraisalment when they fixed the rates?

"A. My understanding is that it was not.

"XQ. 118. It was rejected in both of those years?

"A. I so understand" (pp. 346-7).

And further:

"XQ. 556. I also find in that same report (Feb. 17, 1902), the following language: 'Considering the uncertainty of adequate returns on investments made in water properties and the special risks and responsibilities assumed by the Spring Valley Water Works in establishing and maintaining its works for the supply of water to this city, I would recommend that 10 per cent of a reasonable estimate of the cost of reconstructing and reacquiring their properties (including the above 25 per cent on the city distributing system) be added as an allowance for franchise value in determining the valuation which is to serve as a basis for establishing water rates.'

"A. I held that view at that time, and for that reason made the recommendation, but I do not believe it is proper to add the franchise value to the appraisalment" (pp. 421-2).

Mr. Adams, the only other witness for complainant who discusses this matter, is of the opinion that franchise value is dependent on ability to earn a sum in excess of current rates of income, and that such a condition cannot exist under the California system of regulation of rates. He said:

"The next line of inquiry in determining the value of the property in question relates to the value of the franchise.

My reasons for considering this matter are as follows: If a concern is actually earning revenue in excess of an amount sufficient to meet all cost of production, including a proper return upon the value of the property employed, it has become a very common practice to credit such surplus earnings to franchise. It can not be denied that under such conditions, by whatever name it may be called, this ability to earn a large surplus, when it may be exercised, constitutes an important element of value. It appears, however, that the creation of an earning power directly attributable to franchise under this definition, and the consequent creation for it of real value where it has cost nothing, presupposes the entire absence of regulation of rates on the part of the government for the purpose of securing water service at no greater cost to the consumers than is consistent with fairness to the water company. In other words, franchise if it has cost nothing is not necessarily an element of value upon which any revenue need in fairness be allowed by rate-fixing authorities. Indeed the very purpose of the law apparently is to prevent such excess earnings as are here assumed to give value to the franchise. If on the other hand there are no legal restrictions, and a water company is allowed to collect such rates as seem to it alone expedient, it may easily be imagined that its earnings might in many cases be greatly in excess of what would net it a very reasonable or even liberal return upon the otherwise value of its property, no matter by what rational method such value were determined. Again, when water companies have by wise foresight and prudent expenditure acquired properties, such for instance as lands and water rights which by reason of their especial adaptation to their purpose can not be dispensed with without securing other properties productive of equivalent results at a cost materially in excess of the investment actually made, such enhancements of value have sometimes been credited to franchise. This element of value I have already pointed out to be a real asset, but it stands in a class by itself. To term it franchise seems a misnomer since it represents real value wholly independent of the franchise.

“Again, the fact that a property possessed of and actually doing large business capable of affording a sufficient

revenue is worth more than a similar property without such business, has sometimes been termed franchise value. This, too, while doubtless a real asset, is better classed as 'established business,' and will later be again referred to. I am therefore of the opinion that the first before mentioned view of what constitutes franchise value is the correct one; that every other element of real value is more properly classified otherwise and that under the system of regulation of rates by the State no value need attach to franchise either for purposes of taxation or revenue" (pp. 4754-5).

And again, he testified:

"The franchise I do not regard as having value save as it is included in the element of established business or in the cost of a substitutional water supply" (p 4769).

The foregoing quotations contain the substance of all the evidence we have been able to find in the record in this case which by any possibility can be used as a basis of a finding upon the amount, if any, to be allowed for the value of the franchise of the complainant company. The only method of computation of that value suggested by any witness is that adopted by Messrs. Adams and Grunsky, viz: the power to earn an income in excess of current rates of interest. The decision of Judge Farrington in the 1908 case so completely disposes of this theory as a basis of value that no further reference to the matter is required, other than to apply the principles there announced to the record in this particular case. The figures quoted in that opinion as to the amount of income of complainant cover years later than those involved in these consolidated cases, but the record here shows the same conditions.

The bills of complaint in the three cases here consolidated all allege an income for each year, from 1858 to the date of the filing of the complaint, less than current rates of interest.

Bill in Action No. 13395 (1903-4 suit), page 8, line 24, to page 9, line 14.

Bill in Action No. 13598 (1904-5 suit), page 9, lines 1 to 63.

Bill in Action No. 13765 (1905-6 suit), page 9, lines 1 to 67.

The following is quoted from Judge Farrington's decision in the 1908 case:

"The value of the franchise then, is the monetary value of the right to collect water rates. What, then, is it worth to complainant to collect water rates from the people of San Francisco?

"This question must ultimately be decided in the light of all the circumstances and conditions. The burden of proof is on complainant. Complainant must, if it wishes its franchise and going business to be treated as things of definite value, establish that value. (*Capital City Gas Co. vs. Des Moines*, 72 Fed., 818, 822.) It is not the duty of the Court, nor was it the duty of the Supervisors, to give value to the franchise, and add that value to the value of the physical property, unless it first appeared that the franchise had an intrinsic productive value of its own. Their duty was and is to measure the disclosed and apparent value of the franchise.

"In 1858 there was an act of the Legislature of California under which certain predecessors of complainant were authorized to collect water rates which would yield an income of not less than 20 per cent per annum on the actual capital invested in the waterworks. If complainant were now operating under such a law, its franchise would be immensely

valuable, and that value could be readily ascertained by computations based on the difference between 20 per cent and the prevailing rate of interest. When the prevailing rate of interest is 7 per cent, a franchise which will enable its owner to collect 20 per cent on his investment is valuable. But, on the other hand, when the prevailing rate of interest is 20 per cent, a franchise under which the owner can realize but 7 per cent has very little value.

“‘It is obvious . . . that either for the purpose of condemnation or regulation the value of a franchise depends wholly upon what is earned under it. . . . The best way of finding out how much a franchise separately considered is worth, is to ascertain what those persons desirous of continuing operation under it consider it to be worth.’

“Consolidated Gas Co. vs. New York, 157 Fed., 849, 878; Monongahela Nav. Co. vs. United States, 148 U. S., 312, 329; Kennebec Water Dist. vs. Waterville, 54 Atl., 6, 19; Montgomery Co. vs. Bridge Co., 110 Pa., 54, 59.

“In the last case the Court said:

“‘Their (referring to franchises) value necessarily depends upon their productiveness. If they yield no money return over expenditures, they would possess little if any present value. If, however, they yield a revenue over and above expenses, they possess a present value, the amount of which depends in a measure upon the excess of revenue. Hence it is manifest that the income from the bridge was a necessary and proper subject of inquiry before the jury. The court permitted the plaintiff to prove the receipts for, say five years before the taking, but denied the defendants permission to extend the inquiry back to the time of the organization of the company. We perceive no error in this ruling’ (165 Fed., 693-694).

Further quotations from Judge Farrington’s decision on this point are given in our discussion of the law on pages 52 and 53 of this brief.

GOING BUSINESS.

In our discussion of the law applicable to these cases we have contended that no separate or extra allowance should be made for rate-fixing purposes for that item which is commonly designated as "Going Business"; that such value, if any, is but a characteristic of the structural value; and that a separate or extra allowance therefor would be in effect a double allowance (pp. 27 to 35 of this brief).

We come now to a consideration of the evidence upon which complainant bases its claim for an extra allowance for this intangible element. In this, as in all other contentions raised by complainant, the burden of proof is upon it.

"Complainant must, if it wishes its franchise and going business to be treated as things of definite value, establish that value" (Decision in the 1908 case, 165 Fed., 693).

What definite value does the evidence in this record establish for the item of "Going Business"? Two witnesses for complainant (Messrs. Schuyler and Adams) estimate the value of the going business of complainant as being the amount of alleged losses sustained by the complainant and its predecessors from their organization to the date of the adoption of the present State Constitution; that is, the amount by which actual dividends during that entire period fell short of interest computed

at current rates upon the *par value of the stock of the corporation*. The sum total of these assumed losses is taken from an exhibit filed by the complainant company with the Board of Supervisors in 1880, and the figure there stated, \$5,671,509, is adopted by these two witnesses as the amount which should be added to the established tangible value of complainant's property for this intangible element.

It is at once apparent that computations of this character should be based *upon the amount of capital actually invested in the business*, and not upon the nominal capitalization. It is upon that basis that Table No. 1 was prepared.

The following quotations from the testimony of Mr. Adams explain his reasons for including a value for Going Business.

"The next consideration to which I have given attention in the determination of the value of the property of the Spring Valley Water Company concerns the asset usually termed 'established business.' I have already heretofore pointed out that a system of works already possessed of a sufficient business to make the property a profitable investment is worth more than a similar property without a revenue. That an established business constitutes a very real asset would seem to be beyond dispute, but the money measure of its value is so difficult of determination that it has at times compelled resort to mere arbitrary opinion. Such a procedure is, however, to be avoided if a logical standard can be found. It does not appear that such a standard is wanting where proper accounting has been employed, and its reasonableness lies in the fact that it is rooted in the necessities of water works' construction and growth as demonstrated by general experience. This measure is found in

the actual cost of establishing the business as ascertained by the losses during the early history of the plant arising from the want of a sufficient revenue to pay at least current rates of interest on the necessary investments. I have already made brief mention of this subject, but it is worthy a little further amplification at the risk of some repetition. The building of water works suited to prevailing needs with liberal allowance for future increase is a work of necessity for any modern city, a work which, especially in the regions of sparse rainfall, must after the first nucleus is formed precede rather than follow growth in population. A suitable water service must be obtained regardless of the magnitude of the necessary cost. Because of these facts it almost invariably happens, where local conditions render necessary heavy initial capital outlays, that to some extent the future must be discounted in the early financing of the enterprise. In other words, the limited number of rate-payers makes it impossible for the enterprise to pay adequate returns on the investments until the population and business industry, increasing under the stimulus of an abundant water supply and other causes, make possible an adequate revenue. What is to be the return for this unavoidable additional source of expenditure in the establishment of a sufficient business? Its result is the creation of this asset known as 'established business,' and the attendant expense is an actual measure of what it has cost to create it by the only means by which such an element of water-works value can be created. Cost is therefore a rational measure of the value of this element 'established business.' It appears that this sum of unpaid interest accumulation on investments prior to January 1st, 1880, amounted to \$5,671,509.

"Q. 273. How did you get at that? Do you mean by taking the difference between the amount paid each year as dividends on the par value of the capital stock and the prevailing rates of interest? Is that the way you get at it?

"A. Yes. My understanding that this amount really represents the accumulation up to that time when the water rates were first fixed by the Board of Supervisors under the provisions of the present State Constitution, and when, according to Mr. Reynolds' table, the revenues were nearly

sufficient to pay current rates of interest on the stockholders' investments. This seems to be the most logical and rational valuation of the element usually known as 'established business'" (pp. 4755-7).

And :

(Answer to XQ. 1505.) "The only deficiency of past revenue which, it seems to me, properly accrues now to the value of the property, is the losses during the early history of the company in bringing its revenue up to that point where they are sufficient to meet the necessary expenditures, and that I only use as one rational measure of the intangible asset ordinarily known and referred to in court decisions as the going value. In reference to that I may say that there may possibly be other ways of measuring the values of that asset, but I do not know any. The fact must remain that even if there never has been any deficiency in the past that asset still remains; in such a case I do not know how I would determine its value: perhaps I would be compelled to simply resort to an arbitrary amount.

"XQ. 1506. Like Mr. Hering did, for instance?

"A. Yes, I think Mr. Hering did it. It is not an unusual practice. It seems to me that where there has been such a deficiency it is a rational measure which may be applied to the determination of the value of such an asset because it is the customary experience in the establishing of water rates properties that such deficiencies do exist. They are usually unavoidable. The deficiency is created and made in the performance of the necessary duty in the supplying of water to the consumers, and if the accumulation of such a deficiency is a necessity it must be justifiable and, if justifiable, it must be a rational measure of the value of that asset of established business, in absence, at least, of any other more rational method.

"XQ. 1507. Did you understand from Mr. Reynolds' testimony that there were actual losses during those earlier periods?

"A. The losses are simply deficiencies in proper interest returns.

"XQ. 1508. Is there any difference between that and his idea of deficiencies, between returns and what he thinks a proper rate of interest after they got to paying dividends? What is the difference in principle?

"A. The difference in principle is this, if a property is chronically deficient in revenue there is something wrong with the property, there is something wrong in the conception of it, in the beginning. Under such a circumstance, assuming the deficiency is not due to an improper exercise of the rate-fixing power, the condition shows that the property must be worth less than it cost.

"XQ. 1509. That does not hardly answer the question. You say you derive your figure for going value by taking Mr. Reynolds' figures on the amount of revenue which the company should have derived and did not derive prior to the time it began to pay dividends?

"A. That is not exactly true; I could not get that information from Mr. Reynolds' figures as he has presented them. I got it from the evidence before the Board of Supervisors on a former occasion.

"XQ. 1510. Unsworn statements?

"A. I assume they were sworn statements. They were presented as evidence before the Board.

"XQ. 1511. Do you know whose testimony?

"A. I think it was the testimony of a man by the name of Pope.

"XQ. 1512. My statement as to the way you derive the value of the going business is correct except as to the source of your information? I will state it this way: your position in regard to the value which you give to going business is this, that it is the amount which is represented by the income which, in the opinion of the person who testified before the Board of Supervisors, should have been derived by the stockholders before the stock began to pay dividends, but which was not derived; is that correct?

"A. Yes, that is the measure which I have used.

"XQ. 1513. Is there any difference in principle between the period before they began to pay dividends and the period after they began to pay dividends if the amount of dividend is not equal to the prevailing rate of interest?

"A. Yes, there is a difference in principle.

"XQ. 1514. What is it?

"A. I have just sought to explain that; I may add a word to it, however, that would make the application clear. I say if it is evident that the deficiency of revenue is a chronic condition there must be something the matter with the property, that the property then must be worth less than the investment, and in such case it has no going value. Consequently if there never comes a time in a reasonable period of time when such revenues do become sufficient to meet the necessary expense then it shows conclusively that that is the fact, that that is the condition, the property is worth less than it cost. But if at the expiration of a reasonable length of time that condition is demonstrated to no longer necessarily exist and the accumulation of the deficiency ceases, then, those losses having been incurred in the business of establishing the property, they become at least one measure of the value of the established business. Do I make myself clear now?

"XQ. 1515. Yes, you make it clear, but it does not seem to be an explanation; however, I understand what you mean. Do you know whether or not, as a matter of fact, the amount paid by the consumers prior to the payment of the first dividend either by the old City Water Works or the Spring Valley Water Works was sufficient to more than cover the operating expenses, the interest and the taxes?

"A. To what period do you now refer?

"XQ. 1516. I refer to the period before the payment of the first dividend which, I think, in the case of the City Water Works, was 1861, and, in the case of the Spring Valley Water Works, was 1863, if I recollect correctly?

"A. All the knowledge which I have of that is the knowledge deduced from the figures which Mr. Reynolds has given in evidence.

"XQ. 1517. And the only knowledge you have by which you derive your estimate of the value of the going business is from some published testimony of what was given before the Board of Supervisors.

"A. Yes, excepting as that may be confirmed by any evidence presented showing what the actual investment is of

revenues derived from water sales. If that information were supplied, then, the amount could be derived from Mr. Reynolds' figures. At the time of the preparation and giving of my evidence that information had not been derived, so I am only able to reach a sum from a consideration of Mr. Reynolds' evidence, which includes two factors altogether without it being possible to determine the line of division between the two; the two factors being the amount of this deficiency from lack of revenue and the amount of the revenue from water rentals which has gone into new construction.

"XQ. 1518. I do not get it yet. Will you state again clearly just exactly how you got at the exact sum you set down in your direct testimony as your opinion of the value of the going business of this company?"

"A. I have obtained that by a study of the evidence presented before the Board of Supervisors, as I have referred to.

"MR. PARTRIDGE—Then I move to strike out and suppress all the testimony of the witness on the value of the going business of the company upon the ground that it is derived from hearsay" (pp. 5237-41).

We also submit quotations from Mr. Schuyler's testimony on the element of Going Business as follows:

"XQ. 11. Is it your idea that the measure of the value of 'going business' represents the losses of the company to the time it began to pay dividends?"

"A. Up to the time it was a paying concern, yes, sir. That may not have been, however, the precise date at which the first dividend was paid. There may have been subsequent losses after some dividends were paid, due to the same general class of investment" (p. 5461).

And:

"XQ. 16. What I am trying to get at, Mr. Schuyler, is this: what represents, in your mind, the distinction between money which has gone into the works and become a part

of the actual investment in the works and that portion which would constitute the element which you call going business; where do you draw the line?

"A. If the returns to the company were always adequate to pay a fair rate of interest upon the investment and maintain the plant from the beginning there would be no deficiency which might be termed the cost of establishing the business; it would have been established from the inception.

"XQ. 17. Supposing you take a year like the year 1874, when, according to the evidence, the company paid one-half of one per cent per month for four months, and three-quarters of one per cent per month for eight months upon the par value of its capital stock and, in addition thereto, had left over a certain margin of profit which was put into the works, was invested in the works, that is, used in the construction and the purchase of properties, would you say that that difference, that is the amount that went into the works, was a part of the element 'going business'?

"A. That was not a loss, no, sir.

"XQ. 18. Take the year 1865. Supposing that, taking that year, there was a margin from water sales, over and above the expense account, taking expense in its broad sense, which was also put into the works; that is, was used in the construction of properties and the purchase of properties, would you say that that margin was an element of going business?

"A. No, I do not think that anything that has been actually invested by the company in the building of a plant from its receipts or its dividends or stock assessments may be considered as a part of the going value of a business. What seems to me to be the element of going value is constituted by the lack of sufficient revenue during its early history to pay a fair rate of interest and its expenses and taxes and so forth" (pp. 5462-4).

And again:

"XQ. 22. Did you have before you, in getting at the value of going business, the element of the amount of interest which the stockholders would have been entitled to

on the amount of money actually invested in the year prior to the time when they began to pay dividends?

"A. No; I had before me the net result of a figure made up to the time when the new constitution was adopted and when the control of the fixing of rates passed from the water company to the Board of Supervisors. This was the sum of \$5,671,509.

"XQ. 23. Your computation then, on going business, ran up to the year 1879, when the new constitution was adopted?

"A. Yes, sir.

"XQ. 24. Whose figures did you take on that?

"A. It was a statement found in the Report of the Proceedings of the Board of Supervisors in 1879-80. I have forgotten whose figures they were, but they were in the published Report of the Proceedings of the Board in the inquiry held to ascertain the necessary data for the fixing of water rates, and this testimony was brought out at that inquiry.

"XQ. 25. Was that testimony brought out in any detail at all or was it a mere statement of some witness that that was the fact?

"A. There was not a great deal of detail as I recollect in the evidence, but the total amount expended up to that time was stated and this sum of \$5,671,509 was represented as the computation of the losses up to that time or the deficiencies in paying current interest.

"XQ. 26. Do you consider that that was a definite enough statement upon which to base the value of the going business of this corporation?

"A. Well, it was a statement evidently made up by a skillful accountant who had given his basis of computation and as it was the only thing I could find of the total amount of such losses I accepted it as being correct.

"XQ. 27. Did you make any sort of an examination to determine whether or not that sum had been arrived at according to the principles which you have laid down here today, namely, by adding together the operating expenses and the current interest to which the corporation was entitled and deducting therefrom the proceeds from the sale of water?

"A. No, I had no means of arriving at a check of the corporation's figures.

"XQ. 28. You do not know whether, in figuring that, the person who made it up figured the interest on the basis of the par value of the stock?

"A. I have no definite knowledge about that, but I think the statement was such as to indicate that he figured only upon the investment and not upon the stock.

"XQ. 29. If you knew that, as a matter of fact, during the great majority of the years from the time when dividends were paid until up to the year when the New Constitution was adopted, the amount of profits from the sale of water paid out actually in dividends, not taking into consideration the amount of profits that were put into the permanent investment, when figured upon the actual investment, were not below but were in excess of current rates of interest, then that computation would not be worth anything for the purpose of establishing the value of going business, would it?

"A. If you assume that the rate of interest was improperly computed, and the method improperly conducted, that may be true, yes, sir" (pp. 5464-6).

And again:

"XQ. 42. Supposing that in addition to those dividends during those years, there was a certain margin derived from water sales over and above expenses, taxes, interest and dividends, which was invested in the construction of works; then, do you not think that that amount should be deducted from the amount which you take as the value of going business?

"A. I think there should be a balance struck between these conditions, pro and con, covering a period of years, and the result, if against the company, would represent the value of the going business. I do not know but that in some years the balance would be against the company and that in other years it would be in its favor. What I have used is a figure which is the general balance of the total period of the business up to 1879.

"XQ. 43. But you merely took those figures that were given before the Board of Supervisors, did you not?

"A. Yes, sir.

"XQ. 44. And you do not know how they were made up?

"A. I do not know how they were derived, no.

"XQ. 45. Your idea of the value of the going business, is the losses sustained by the Company prior to the year 1879; is that correct?

"A. Yes, sir.

"XQ. 46. Prior to the adoption of the New Constitution?

"A. Yes, sir.

"XQ. 47. To get at those losses you take, during any one year, the income from water sales and deduct therefrom the expenses, added to a sum representing the current rate of interest for that year, on the amount of money actually invested?

"A. Yes, sir.

"XQ. 48. Supposing it should transpire that during those years, instead of there being a loss, that is, in other words, instead of the sum arrived at by that figure being on the minus side of the ledger it should be on the other side, then where would you get your value of the going business, that is, would you consider that the value of the going business would be a negative quantity.

"A. If the going business had not cost anything it would not be a negative quantity, no, it would not be represented by any sum in dollars and cents, because it had not shown in the accounts as an item of cost and expense" (pp. 5470-1).

And further:

"XQ. 54. Let us reframe the question: supposing that during any one year the sales of water paid all the operating expenses, the interest on bonds or floating indebtedness, the taxes and all other expenses, and one per cent on the amount of money actually invested, and, in addition to that paid a sum, in dividends and in money put into the construction of the works, which was equal to the current rates of interest upon money actually invested at that time, then should any-

thing be added during that year for the element of going business?

"A. No.

"XQ. 55. Then, in order to determine whether or not the figure which was given by this witness, whose name you do not remember, before the Board of Supervisors was worth anything you would have to investigate the elements which were presented in my last question, would you not?

"A. I think so. The figures made up by this witness must necessarily have taken into consideration those elements.

"XQ. 56. Do you remember whether they did or not? Was there anything to show in the testimony you read, which was given before the Board of Supervisors in 1881, or whenever it was, whether those things were considered?

"A. No.

"XQ. 57. Do you know whether that person was a witness for the corporation?

"A. I think he was, yes, sir" (pp. 5473-4).

And further:

"XQ. 73. Why did you stop at the year 1879 in getting at the value of going business?

"A. Because at that time the power to fix water rates was taken out of the hands of the company by the people and put into the hands of the Board of Supervisors.

"XQ. 74. What difference does that make on that question?

"A. It would make every difference in the world because the consumers in that case become the arbiters as to what rates they should pay and what the company shall be allowed to collect, whereas, prior to that time, the water company had the power to fix its own rates and collect what it was entitled to" (pp. 5477-8).

In a report made by Mr. Schuyler on the purchase

of the North Pasadena Land and Water Company, he used this language:

“The value of the going business, and the fact that the plant is established and in successful operation, satisfactorily performing service, may be regarded as *a fair offset to all other depreciation*” (p. 5660).

It will be noted from the above quotations that the only basis for the value placed by both Messrs. Adams and Schuyler on the alleged element of going or established business, is a statement filed with the Board of Supervisors at about the time the present State Constitution went into effect. Both witnesses admit that if the fact should appear that instead of having made losses, as claimed, during the period covered by that statement, the complainant had received in rates an amount equal to current rates of interest, all the alleged value attached to this item would disappear.

In a prior portion of this brief (pages 165 to 172), we have discussed at length the actual investment by the stockholders, the amount of undivided profits accruing to the stockholders which were put back into the works, and the profits in the shape of dividends and undivided profits which were realized. In that section we also submitted Table No. 1, which illustrates in detail the investment made by stockholders in the works and the profits earned. In contrast to the statements of Messrs. Adams and Schuyler that the early losses of the Company through interest loss from lack of revenue amounted to \$5,671,509.00, it is shown in Column 19 of Table No. 1 that the stockholders re-

ceived, from the inception of the companies to the New Constitution in 1879, a sum of \$1,435,923.83 more than they would have if their money had been deposited at savings bank rates of interest. Column 22 shows the stockholders as losers by \$69,583.79, compared with what they would have received had their money been loaned out at the rates paid by the Company on its own loans.

In connection with this latter figure it might be pointed out that the high rates paid at certain periods by the Company covered loans very much smaller than the total investment at those periods in these works, and it is certain that the very much larger amount of investment could not have been placed at such high rates of interest as were paid on the smaller loans. For instance, in the year 1862 the Company borrowed \$36,350.00 at $2\frac{1}{2}$ per cent per month, \$15,900.00 at 2 per cent per month, and \$89,850.00 at $1\frac{1}{2}$ per cent per month (p. 622 of Mr. Dockweiler's testimony). The average interest paid is calculated at 21.7 per cent per annum (p. 622), and this figure is used in column 15 of Table No. 1 as the rate of interest paid by company on its own loans. The total investment of stockholders at the end of that year (1862) was \$1,852,750.00 (column 7 of Table No. 1), and no one could claim that such a high rate of interest as 21.7 per cent per annum could have been obtained for the loaning out of this much larger amount, even under conditions prevailing in those early years. This is also borne out by

the fact that the larger sum of \$89,850.00, previously mentioned, was borrowed at 18 per cent per annum.

As previously explained (p. 188), however, the undivided profits (column 5 of Table No. 1), were made up in accordance with the figures given in Mr. Reynolds' exhibits. It has been shown at pages 185 to 187 that the undivided profits, according to the books and Mr. Wenzelburger, were \$988,999.19 in excess of the figure given by Mr. Reynolds, who improperly deducted that amount. At the risk of repetition we call attention to the fact that had this amount of \$988,999.19 been included in the undivided profits (column 5), the total profits (column 11), as well as the excess of profits over amount that would have been earned at savings bank rates of interest (column 19), would have been correspondingly increased, while the loss shown in column 22, covering difference between what the stockholders earned and what they would have received had their money been invsted at rates of interest paid by the Company on its own loans, would have been eliminated and a substantial profit shown.

As clearly stated in Table No. 1, all the figures used therein were obtained from the account books of the company, or the exhibits of its financial expert. This is complainant's own evidence, and no more conclusive authority could be obtained. It being proved that the company made handsome profits down to 1879, there is no basis for the value placed upon this element of Going Business by Messrs. Adams and Schuyler.

Further facts proved by Table No. 1, relating to the

period from inception of the companies down to 1879, are:

That the stockholders contributed in payments on their capital stock a total figure of (column 3)\$ 3,501,825.96

While they received in dividends a sum double that amount, namely (column 9)\$ 7,884,367.08

In addition the amount of undivided profits put back into the works (column 5) exceeded the contributions by stockholders, totaling as they did to\$ 3,991,228.70

The total profits from inception of companies down to 1879, being the dividends and undivided profits, amounted to (column 11)\$11,875,595.78

The above figures speak for themselves and comment is needless, except to say that if Messrs. Adams and Schuyler had had recourse to the account books of the company, instead of to inaccurately computed exhibits, they would have found no foundation for their claim for Going Business value.

IT WOULD SEEM TO BE AN EXTREMELY GOOD BUSINESS PROPOSITION TO CONTRIBUTE A SUM OF \$3,501,825.96, SPREAD OVER THE TWENTY-TWO YEARS FROM THE INCEPTION OF THE COMPANIES DOWN TO 1879, AND TO

EARN TOTAL PROFITS IN THAT PERIOD OF TIME AMOUNTING TO \$11,875,595.78, OVER THREE TIMES THE AMOUNT OF THE TOTAL CONTRIBUTIONS, AND THE FORTUNATE STOCKHOLDERS ARE TO BE CONGRATULATED RATHER THAN TO BE SYMPATHIZED WITH OR REWARDED FOR IMAGINARY LOSSES.

We now submit further quotations from the testimony showing the theories of other witnesses concerning this element of "Going Business."

Mr. Hering did not attempt to segregate from his total estimate of five million dollars for intangible values any particular sum for this or any other item. Upon cross-examination, however, he admitted having used the following language on a previous occasion:

"It has been said that the cost of securing and establishing a profitable business of supplying citizens with water and of securing their patronage, should be paid for by the citizens. This is undoubtedly true and fair, but the cost has been, or should have been, covered by the schedule of water rates; a further allowance at the end of the term would then be its duplication" (pp. 3908-9).

Mr. Grunsky, in his Report to the Board of Public Works of January 30, 1903, estimated the value of the Going Business at \$1,400,000.00, and in his Report of January 26, 1904, at \$1,500,000.00. He suggested these amounts to be added at the option of the Board of Supervisors, his idea being that they should be allowances to cover contingencies, uncertainties and omissions in

the estimates. The suggestion that one and a half millions of dollars should be added to the valuation of complainant's property on account of uncertainties or omissions in other valuations cannot commend itself as testimony upon which to base a judicial finding of the value of this alleged element of complainant's property.

Mr. Grunsky explained his estimate of this item as follows:

"Q. 30. Do you know whether this later appraisalment differs materially from the appraisalment made the year previously; that is, the one already in evidence?

"A. It does not differ materially except that the figures therein contained have to some extent been revised, and the total noted in the report does not include the allowance for value due to the fact that the business of the Spring Valley Water Company is an established one. This amount, suggested for addition at the option of the Board of Supervisors, was mentioned at \$1,500,000.

"MR. KELLOGG—Q. 31. It is the same, relatively, as the one you mentioned before, referring to contingencies and matters of that kind?

"A. I do not understand the question.

"Q. 32. You said, in referring to the \$1,400,000, that it was not really the value of the going business, but that it covered contingencies and matters of that kind?

"A. That I would like to have it construed in that way, that it is an allowance made for such purposes rather than as value due to its being a going concern" (p. 183).

And:

"XQ. 121. Will you further explain what you mean by the use of the word 'contingencies'?

"A. There is, of course, uncertainty in the mind of an engineer appraising works of this character as to the diffi-

culties that were encountered in the construction of any particular piece of work; there may have been detail connected with parts of the system to which the engineer's attention was not directed. All matters of this kind were intended to be covered by the allowance for contingencies, and, in this case, by the additional allowance called in this report an allowance for the fact that the business is an established one.

"XQ. 122. In your opinion was that a reasonable sum to allow for contingencies and omissions?

"A. I think it was a very liberal sum to allow for that purpose" (p. 348).

Mr. Fitzgerald reached a conclusion on this matter which more nearly represented the actual facts than that announced by complainant's witnesses. He testified:

"XQ. 218. Did you include in your estimate of \$23,000,000 anything for going or established business?

"A. Certainly not.

"XQ. 219. Did you include anything for losses occasioned by the establishment of the business?

"A. I made a careful study of the cash invested by the company. Whether there were any losses connected with the investments or not it is difficult for me to say. I believe that my estimate is a reasonable and just one because I think it represents very nearly the total amount of cash put into the whole works.

"XQ. 220. Let us assume that a certain amount of cash was put into the works, say \$23,000,000, according to your estimate, and that the works did not pay a fair rate of interest for ten years upon the investment, is not that sum a loss to the company in establishing the business?

"A. It seemed to me, from the study I made of it, that the works did pay a fair interest and a fair profit to the company and the company was perfectly satisfied with it.

"XQ. 221. If the works paid an interest of only 9 per cent per annum when the current rates of interest were 18

per cent per annum, would you consider that a fair rate of interest?

"A. I did not arrive at any such conclusion after a study of the case. It seemed to me that not only has the total amount of receipts received by the company paid a satisfactory dividend, but has enabled the company to purchase properties outside of those which are now in use, and to invest a surplus in the works.

"XQ. 222. If, as I say, it should appear that when current rates of interest were 18 per cent per annum and the company was only receiving 9 per cent from the rates, would that not be a loss in the establishment of the business?

"A. I did not consider any such thing a loss.

"XQ. 223. Would you or would you not consider it a loss?

"A. I do not admit that the current rates of interest were what you state.

"XQ. 224. I understand that, but I say assuming that?

"A. My own view of it is that the amount of income which this company has received has paid, in some cases, much more than 18 per cent on the actual amount of cash invested.

"XQ. 225. Have you any figures to prove that?

"A. I have" (pp. 463-5).

Mr. Dockweiler testified:

"Q. 117. Have you made any investigation or study upon the question whether or not anything should be added to the plant of the Spring Valley Water Company on account of what is designated as going business?

"A. I have.

"Q. 118. What conclusion have you arrived at?

"A. If we attempt to estimate the value of the going business from the mechanical and physical points of view, I do not think that anything should be allowed on this account in addition to the actual cost of the properties. If great skill has been shown in securing high mechanical adaptability, availability and efficiency, the company should not be allowed to capitalize that and demand increased earnings upon it, because the consumers bought and paid for the serv-

ices of engineers and other skilled persons when it paid the salaries and expenses of these persons. The salaries of executive officers, the engineers, the accountants, the legal department, and, in fact, all of those whose industry and skill have contributed to building up the works, have always been paid out of the rates, and to make any allowance now for that, would be to compel the consumer to pay interest on money that he himself, or other consumers, had contributed. If we attempt to estimate the value of going business from the commercial or profit point of view, we find that there is a clear distinction between a water works company supplying water to a municipality under the Constitution and laws of the State of California, and any form of private business. Ordinarily, the term 'going business' is employed to designate that state or period where the money invested begins and continues to pay an income over and above all expenses as against the time when it was not being run at a profit. If there was at one time a risk or a chance that the business might prove unprofitable, then the term 'going business' has some meaning, but in the case of this company, there has always been a guaranteed income. The uncertainties of commercial life were never present, and the term 'going business' never had any significance for it. It is true that for a very few years in the early history of the company, no actual profits were paid in the form of dividends, but it is equally true that from its inception the Spring Valley Water Works and the old San Francisco City Water Works earned a profit over and above all expenses, though in its early years, that profit was invested in the works. The going business of a water company under the Constitution of this State, depends upon the franchise or right to collect and sell water and use the streets of municipalities for conducting that water to the consumer. All of which things are guaranteed to water companies by the Constitution, and it would seem that if there is any element of going business, these privileges more than compensate for it. If the going business is to be added to other assets of the water company for rate-fixing purposes, it will be a cumulative asset; in other words, if going business has any value, it has a value which increases as the business does. The more con-

sumers, the more value, so that instead of getting a lower rate by increase of business, the rate will become greater, or in other words, a community would be penalized for growing. It is not the trade or custom that the company is to be allowed for, but the rates are to be fixed so as to establish a business upon which the company shall supply the trade. I think that I can fully agree with Mr. Rudolph Hering, who used the following language in his discussion of water works valuation in the transactions of the American Society of Civil Engineers: 'It has been said that the cost of securing and establishing a profitable business of supplying citizens with water and securing their patronage should be paid for by the citizens. This is undoubtedly true and fair, but the cost has been or should have been covered by the schedule of water rates, and further allowance would then be duplication.' The expenses incidental to building up this profitable business have been fully allowed for in the shape of salaries, maintenance and operating expenses. Hence, the city has already paid for the going business, and as justly observed by Mr. Hering, a further allowance would be a duplication" (pp. 564-6).

As conclusions from the foregoing discussion, defendants submit that no allowance can be made in these cases for the alleged value of complainant's "going" or "established business," for the reasons above stated, viz:

(1) That separate and distinct valuation is not proper in law.

(2) That the evidence in these cases disproves that early losses were made in the establishment of the business; and that, therefore, the alleged basis for computation of the value of this item disappears.

(3) That the basis suggested for estimating the value of this element is too uncertain and objectionable to be used in computation of the value of complainant's property.

It was upon the latter ground that these estimates were rejected by Judge Farrington in the 1908 case. In the opinion in that case, it is said:

"Two of the experts estimated the value of the going business to be equal to the total amount by which current rates of interest exceeded the net profits of the business prior to 1880. In other words, the value of the going business is equal to the cost of establishing the Spring Valley Water Company's business originally, and that cost is equal to the deficiency of revenue prior to 1880. This estimate is open to the objection that the deficiency of revenue may have been due to extravagant or wasteful management. The company may have purchased a plant larger and more expensive than necessary; current rates of interest may have been abnormally high; many causes which have absolutely no relation to the value of the company's business now as a going concern, may have increased or diminished the deficiency in revenue. Furthermore, if it be conceded that early deficiency of revenue is the proper measure of value for the present going business, then it follows that the greater the deficiency and the more unprofitable the business, the greater the present value of the going concern; and if the business had yielded large profits from its very inception, the going business today would be worthless" (165 Fed., 696-7).

UNIT VALUE.

Complainant claims that additional value attaches to its plant by reason of its "unification into one interconnected whole." Assuming that a unified plant is worth more than a dismembered one, it does not follow that additional value should be allowed therefor. Similarly to the so-called element of "established business," this is but a characteristic of the plant as such. Without unification it would be of little, if any, value to a city of the size of San Francisco. As is said in the case of *Brunswick, etc., Water Dist. vs. Maine Water Co.*, 59 Atl., 537, cited by complainant on page 43 of its brief: "There is only one value. It is the value of the structure as being used. . . . The property taken is a "single thing to which belong certain characteristics "which affect its value." As shown elsewhere the above case cannot be construed as authority for the allowance of any additional value for these characteristics.

But if it be conceded, for the sake of argument, that such additional value might be added, the question still remains: What is the amount of value of this characteristic? What has complainant proved this unit value to be worth? If the complainant cannot estimate its worth, the Court cannot do so for it.

The evidence shows that complainant's witnesses are absolutely unable to fix any value on this so-called element, which is another way of saying that it has no additional value.

Mr. Schussler testified as follows:

"XQ. 3510. Did you consider in making your final estimates the fact that the works are a unit?

"A. I did.

"XQ. 3511. How much did you add on account of that?

"A. I did not add anything for that but I consider the fact that they are in one ownership and that they are worked together makes them a unit, and for that reason I was able to compare with this unit a proposed unit from the mountains.

"XQ. 3512. How much of your final value is due to the fact that the works are a unit?

"A. That I could not tell. They would be worth a good deal less if they were separate pieces owned by separate parties.

"XQ. 3513. How much less?

"A. I could not tell. I have taken the situation just as it is, the way it is being worked together, one branch supporting the other, and the ownership being all in one holding, with a good title to the properties and rights, and as such unit I was able to compare it with the other unit that is proposed to be developed in the Sierra Nevada.

"XQ. 3514. But you do not know how much?

"A. No, sir; I do not.

"XQ. 3515. I will call your attention to your testimony on page 577, the 11th line from the top: 'If the water rights and water properties pertaining to the Alameda Creek system had not been acquired at the early period when they were purchased for the San Francisco supply, the needs of the rapidly growing population on the east side of the bay alone have added a large increment to the value which they possessed at the early period of their acquisition from 15 to 30 years ago, especially since all of these water rights, being then carefully and separately purchased have since then been unified into one magnificent holding, with the lands also separately acquired.'

"A. That is correct.

"XQ. 3516. Did you increase your value and your final estimate in view of the fact that the needs of a rapidly grow-

ing population on the east side of the bay have added a large increment to the value?

"A. I did not. I only mentioned that as an additional factor of value.

"XQ. 3517. You consider it is an additional factor of value?

"A. Oh, yes; but it is outside of my value; I only valued all these properties as a unit compared with the Sierra Nevada proposition also as a unit.

"XQ. 3518. We can eliminate that, then, from the final value of the properties?

"A. It is not included in it. These are simply additional factors of value that I mentioned so as to show that my valuation is reasonable" (pp. 2377-79).

Further testimony of Mr. Schussler on his method of valuation is set forth on pages 479 to 489 of this brief.

Two facts clearly appear from that evidence, viz:

(1) Mr. Schussler's only method of valuation of the properties of complainant, other than the structural properties, the city real estate, Lake Merced lands and the Belmont and Millbrae Pumping Station tracts, is by deduction of the total of his detail estimates, excepting that for the city distributing system, from his estimate of the cost of the Tuolumne system;

(2) No attempt is made by Mr. Schussler to segregate any portion of this total valuation as applied to any separate properties or to any of the so-called elements of value.

Hence there is no basis in his testimony for any finding of additional unit value. We have searched the testimony of the other witnesses in vain in an attempt to find any further evidence upon the value of this char-

acteristic. We are therefore warranted in asserting that there is no evidence anywhere in the record upon which to base a finding of the amount of additional value to be allowed to the properties of complainant on account of their "unification into one interconnected whole."

MR. HERING'S INTANGIBLE VALUE.

Mr. Hering does not attempt to separate these so-called intangible values into their assumed elements of Franchise, Going Business, Unit Value, etc., but arbitrarily announces that the complainant's properties include intangible values which he appraises at the total sum of \$5,000,000. This estimate is obtained by taking one-third of the difference between his estimate of the Tuolumne system and his valuation of the tangible properties (pp. 3474-5). As stated in the 1908 decision, this estimate "does not commend itself by showing any apparent ratio to the earning power of the business itself, and is subject to every objection which can be made to measuring the present value of a thing which is in actual existence by the estimated cost of something which is to be hereafter constructed which may possibly be an equivalent substitute" (165 Fed., 696).

The further objection might be made to this estimate that it is based on no attempt to separate the alleged elements of Franchise, Going Business and other intangible elements contended for by complainant. Both the method of obtaining this figure and the elements which it is supposed to cover are too indefinite to lend any value to such valuation.

As showing the indefiniteness of this figure the following extract from Mr. Hering's testimony is given:

"XQ. 967. This question of proximity was included in the \$5,000,000 you added for intangible value?

"A. It was.

"XQ. 968. How much of that \$5,000,000 was made up of the factor of proximity of source?

"A. I did not analyze the \$5,000,000.

"XQ. 969. How did you arrive at the figure \$5,000,000?

"A. That was my general judgment based on all the experience I have had . . .

"XQ. 971. Why did you arrive at that figure rather than at \$6,000,000 or \$4,000,000?

"A. I took it as a matter of judgment, because, in my opinion, you cannot possibly arrive at any definite figure by calculation.

"XQ. 972. If a man were valuing the intangible or business value or good-will of any other business, such as, for instance, a merchandising business, how would he go to work to value that?

"A. After the value of the physical property is determined I find that the intangible value is always left to judgment or to compromise or to some theoretical rule perhaps that has been agreed upon for calculating such intangible values, but that is entirely arbitrary.

"XQ. 973. Has income anything to do with it?

"A. It may have; it depends altogether on how that income is derived.

"XQ. 974. Intangible value could be nothing less but its value as an income-producing proposition, could it?"

"A. Yes. I think the way that I have valued it here has nothing to do with the income.

"XQ. 975. Now, just exactly what did it have to do with?"

"A. The \$5,000,000 are a round figure, and I can say nothing more than, after a careful consideration, I placed that figure as being the sum of my considerations, and as being a fair value for that part of the property, under the existing conditions" (pp. 3591-2).

FAILURE OF COMPLAINANT TO PROVE VALUE OF ITS PROPERTIES.

Defendants submit that the complainant has failed entirely to meet the burden which rests upon it in this case, and to prove that its properties are of such a value as to make the rate of income allowed to it by the ordinances under consideration confiscatory. We go further and submit that there is an entire absence of competent proof in complainant's evidence upon which a judicial finding of the total value of complainant's properties can be based. At the risk of repetition, we again paraphrase what is said in the 1908 decision as to franchise and going business. "Complainant must, " if it wishes its franchise and going business" (and any or all of its other properties) "to be treated as things of definite value, establish that value" (165 Fed., 693).

What definite value does complainant's evidence establish for its total properties?

In a preceding portion of this brief (pp. 474-6), we have established to our own and we hope to the Court's satisfaction that the preponderance of the evidence in the entire case does not establish a greater value for the structural properties of complainant, including stock on hand, meters and telephones, than Mr. Grunsky's estimate of \$15,277,244; and that Mr. Dockweiler's estimate of \$13,942,086 for the same properties stands unchallenged by cross-examination.

But it is with regard to the remaining properties of complainant that we particularly claim a failure of proof. In order to sustain such claim, a brief discussion of the testimony of each witness is necessary.

As heretofore pointed out, the valuations of MESSRS. SCHUSSLER AND SCHUYLER of the lands and water rights of complainant are both of them based upon comparisons with the proposed Tuolumne system. In order to accept Mr. Schussler's estimates as to these properties, the Court must assume:

(1) That comparison with a proposed substitutional system (which the record shows is but one of several possible sources of supply) is a proper method of arriving at the value of these properties;

(2) That Mr. Schussler's additions to Mr. Grunsky's estimates of the probable cost of the Tuolumne system are proved to be correct;

(3) That this comparative method of arriving at a lump sum estimate furnishes more convincing evidence of value than all the data as to original cost and previous estimates of the same witness referred to on preceding pages of this brief.

None of these facts can be assumed for reasons which are elsewhere stated.

Mr. Schussler said that he was unable to fix any value upon the lands and water rights (except certain reservoir sites and other properties within the City and County of San Francisco and pumping station tracts at Belmont and Millbrae) by any method other than by comparison with the supposed substitutional source; that the day for valuation of water-shed lands and water-rights by the acre or amount of water produced has passed (p. 480 of this brief).

If, then, this method of arriving at value be rejected, as it must be, there remains nothing in Mr. Schussler's testimony upon which the value of any properties other than the structures and San Francisco lands can be determined.

The same is true of Mr. Schuyler's estimates. While he makes different additions to Mr. Grunsky's estimates of the cost of the proposed substitutional system, and also makes a somewhat different use of the figures he obtains thereby, it is equally true of his estimates that they are entirely dependent upon his comparison of the estimated cost of the substitute. His estimates are also subject to the further objection that

they are based upon assumed figures of original investment and loss of interest which we have shown to be erroneous. For both of these reasons, his valuations upon the lands and water rights must be rejected. These estimates are nothing more than what he understands Mr. Reynolds to report as the total amount of money invested in the works, and are in no sense an estimate of present value. Mr. Schuyler's figures therefore fail, similarly to Mr. Schussler's, to furnish any basis for a valuation of the lands and water rights or total properties.

Mr. Adams' estimates were based upon different theories. He began with certain figures as to the cost of complainant's properties and the investment therein. These were all based upon Mr. Reynolds' computations which are discussed in this brief under the headings, "Amount of Investment in Complainant's Properties by Stockholders and Bondholders" (pp. 165 to 172); and "Going Business" (pp. 564-586). Without repetition, we refer to the foregoing portions of this brief for the reasons why these figures cannot be accepted as correct estimates either of cost or investment.

Mr. Adams announced ten different principles upon which he based his judgment that the properties were of the value of from \$40,000,000 to \$45,000,000. These assumptions are discussed in a preceding portion of this brief (pp. 531-545), and further comment would be repetition. It is submitted, however, that Mr. Adams' figures cannot be adopted as a basis for total valuations for the reasons that his estimates of cost and investment

are based upon erroneous figures; and further, that his final valuations are controlled by his individual and unsupported judgment of the value of the service to the consumer. As stated by him in answer to XQ. 1523 (pp. 537-8 of this brief), his final result is reached by a comparison of three approximate figures, viz.: actual investment, \$35,000,000 to \$36,000,000; cost of substitutional system, \$50,000,000; value of the service not to exceed \$45,000,000. The first two of these figures are erroneous; the third is a mere opinion. And it is this unsupported opinion that the rates can be increased from forty to fifty per cent without exceeding "the limit it would be easily practicable for consumers to pay," that controls the final estimate. Mr. Adams finds that real estate values in San Francisco have enhanced and that municipal progress is being made, and reasons that a water rate which does not check either is not unreasonable. If the amount of rates is to be measured by such considerations, the increases suggested by this witness fall far short of what would be possible. San Francisco will progress and its real estate values enhance in spite of a much larger water tax than Mr. Adams seeks to impose. With a geographical situation in the direct path of the world's progress, in which its unparalleled harbor compels it to be a factor; with a climate which stimulates to endeavor every day of the year; and with the indomitable energy of its people; much greater burdens than unreasonable water rates would be necessary to arrest its progress or check the increase of real estate values.

But its progress would be in spite of such rates and would be compelled by considerations which have no relation whatever to the reasonableness of such rates.

Mr. Adams' theories have the merit of originality, but his mere judgment cannot form the basis for a judicial decree. Even if he were clothed with the power to make a final deduction as to value, as he has attempted to do, his finding would not legally be supported by any facts appearing in the evidence. But the Court is asked to accept, not the facts which compel his conclusion (because they are not given), but the conclusion itself. To do this would be without precedent and contrary to well established principles. As stated in another portion of this brief (p. 542), no facts are given from which it can be determined that forty to fifty per cent increase of rates is reasonable, rather than ten to fifteen per cent, or one hundred per cent, or any per cent whatever. This total estimate does not differ in its final analysis from a simple unsupported statement that the witness had become familiar with the valuation of water properties from professional experience, and that in his judgment the properties were of the value of from \$40,000,000 to \$45,000,000.

Mr. Rudolph Hering adopted as his estimate the value of what he assumes to be the least expensive substitutional system (\$55,000,000, p. 3474), as a maximum beyond which the value of complainant's properties should not be fixed. He next adopted what he considers the cost of the plant (based upon Mr. Reynolds' exaggerated figures), as a minimum value; and then

stated that "other conditions must come in by which the
 "true value between these sums can be determined.
 "Those elements which would influence my own opin-
 "ion in this matter would not be purely engineering
 "but would be general business considerations; it would
 "be largely a matter of judgment" (p. 3461).

On direct examination no details are given by Mr. Hering of the items which make up his estimates except the two general divisions of tangible and intangible properties.

On cross-examination it appeared, however, that his figures were made up of six general subdivisions as follows:

City Distributing System (p. 3721)	\$ 7,700,000
Works for collecting and conveying water to distributing reservoirs (p. 3721)	11,949,000
Rights of way (p. 3721)	517,000
Real Estate for storage reservoirs, water sheds and other purposes (p. 3721)	12,498,900
Water Rights (p. 3721)	7,106,000
Intangible Value (p. 3472)	5,000,000
	<hr/>
	\$44,770,900

No further details are given except in certain specific cases, concerning which inquiry was made by the cross-examiner.

From the lengthy cross-examination of this witness we call attention to the following facts: He has never heretofore acted as an appraiser or expert witness in a case involving the valuation of water works for the

purpose of fixing rates (p. 3573) ; and is of the opinion that such works have a higher value for rate-fixing purposes than they have for purposes of sale (p. 3899).

All his figures with regard to quantities were furnished him by Mr. Schussler (Ans. to XQ. 1606, p. 3722). His estimates as to values were obtained "partly from my experience and partly from statements which were furnished me two years ago, in part, of actual cost, by Mr. Schussler" (Ans. to XQ. 1604-5, p. 3722). He accepted Mr. Schussler's estimates of the value of the City distributing system without modification (Ans. to XQ. 1602, p. 3722), also his valuation of rights of way (Ans. to XQ. 1607 to 1611, pp. 3722-3). In his last compilations of his estimate he went over the figures in the testimony (Ans. to XQ. 1596, p. 3721). His unit prices were based on figures given him two years prior to his testimony by Mr. Schussler, "and then some others that we had not talked about" (Ans. to XQ. 1624, p. 3725). "I made some calculations two years ago and I revised everything I had here in accordance with the testimony as it has been given" (Ans. to XQ. 1629, p. 3726). His valuations of lands were also derived from the testimony (Ans. to XQ. 1631-3, p. 3726). His valuation of water rights was derived from a figure given him by the testimony, or elsewhere, "and for which I am not first authority" (Ans. to XQ. 1634, p. 3727). He valued Lake Merced as a distributing reservoir by comparison with his estimates of the cost of other distributing reservoirs in the city (obtained from Mr. Schussler). The

Lake Merced water-shed lands he valued at \$100 per acre, the same valuation as water-shed lands in the entire Alameda and Peninsula water sheds (pp. 3727-8). The lands in the proposed (but unconstructed) Calaveras reservoir were valued at \$1500 per acre, the same price as used for all constructed reservoirs (p. 3730).

The cross-examination of this witness is too lengthy to quote or even to attempt to digest. It is believed, however, that sufficient has been shown to justify the request that the motion to strike out made by Mr. Partridge on page 3729 of the record be granted. After the majority of the above facts had been elicited from Mr. Hering on cross-examination, the following motion was made: "I move to strike out and suppress the "final estimate of the witness as to the value of the "properties of the complainant corporations upon the "ground that it is entirely based upon hearsay."

As grounds for the granting of this motion we refer the Court to pages 3720 to 3729 of Mr. Hering's testimony, portions of which have been digested above; and submit that such testimony shows that the motion should be granted upon the grounds therein stated.

If the Court should be of the opinion, however, that portions of this testimony are technically competent, it is further submitted that its weight is entirely destroyed by the disclosures made on cross-examination as to sources of information upon which it is based. Mr. Hering's knowledge of and experience with local conditions and values were extremely limited. In attempting to place a value on complainant's properties

he did nothing more than review cost figures and valuations furnished him chiefly by Mr. Schussler, and apply his judgment, based on experience in other parts of the world, as to the reasonableness of such figures. It is admitted, however, by all the witnesses that conditions in California and San Francisco differ so widely from those elsewhere as to make comparative estimates of value of little weight. It is also noticeable that while Mr. Schussler furnished Mr. Hering with unit prices for the value of lands, etc., which the latter adopted in his estimates, Mr. Schussler himself declined to use the same figures and stated that the day for valuation of lands and water rights by acres and quantity of water delivered had passed.

We contend, therefore, that Mr. Hering's total estimate cannot be used as a basis of valuation in this case for the following reasons:

1. It is based upon hearsay and therefore is incompetent.
2. It is a mere conclusion as to value, and, therefore, not proper expert testimony under the rule laid down by the Maine appraisers hereafter referred to.
3. It is too general in its nature to enable the Court to draw any conclusions as to its accuracy or reasonableness, or to compare it with the estimates of other witnesses contained in the record.
4. The amount thereof is proved to be altogether too large by the preponderance of the testimony of other witnesses.

5. Such facts as do appear as bases for the total estimate are shown to have been derived from figures furnished by other witnesses, which figures are themselves inaccurate, as shown elsewhere in this brief.

The estimate of MR. F. P. STEARNS of \$70,000,000 as the present value of the complainant's properties is valueless for the reason that it is based entirely upon a comparison with the Tuolumne system; and for the further reason that it is so largely in excess of the valuation given by any other witness that even the counsel for complainant do not insist nor rely upon it.

CONCLUSIONS AS TO VALUE ARE NOT PROPER EXPERT
TESTIMONY AND ARE INADMISSIBLE.

In connection with the value and competency of total estimates and conclusions upon the subject of valuation by expert witnesses in cases of this character, reference is made to a recent ruling by a Board of Appraisers in the State of Maine. Under the law of that State properties of water companies are acquired by the State under special laws, which provide for a valuation by a Board of Appraisers. In the recent case known as the Portland water works case, this board consisted of Judge Albert R. Savage, of the Supreme Court of Maine, the writer of the Waterville and Brunswick opinions (chairman); Judge Frederick A. Powers, recently retired from the Supreme Bench of Maine, and United States Marshal Henry W. Mayo, both of the

latter having previously sat upon other boards of appraisal. The rulings of this board are reviewed in an elaborate article on "Water-Works Valuation," appearing in the Proceedings of the American Society of Civil Engineers for October, 1908 (Vol. 34, No. 8). The writer of that article says (p. 1153) :

"The trial of the last three Maine waterworks valuation suits, which were all conducted on behalf of the several municipalities by the Hon. Herbert M. Heath, of Augusta, and were unique in American annals of such cases, in that he argued successfully against the admission of any testimony upon the total value of the property of the water company by the experts or engineers, holding that in valuing the property as a whole the expert was usurping the functions of the tribunal; that expert testimony was admissible only in so far as it dealt with facts or matters of opinion beyond the ability of the layman to grasp without expert assistance; and that valuation implied a thorough knowledge of value standards, a knowledge of the law as well as of engineering principles or theories, since valuation was a mixed question of fact, judgment, and the law, and therefore must be made always with a full knowledge of the law upon such cases. The appraisers in all these cases (Kittery, Livermore Falls, and Portland), sustained this contention, as appears in the first ruling, quoted later."

The ruling referred to relates particularly to going business value and is as follows:

". . . Now we come to the question whether this added element, this enhancement, so far as relates to the going concern values—and I suppose the same ruling applies to franchise values—can be separated out and made the subject of opinion evidence, expert testimony. The question which was asked assumed that a certain number of dollars per annum was a reasonable income. Of course, that assumption is based upon the results of the application of

certain rules of law ; but there are still other questions of law which, in our judgment, would affect or should affect an answer to a question of that kind, concerning which we have no right to suppose that the witness is qualified to speak. It seems to us that the question of going concern value is material ; that it may be shown that in this case, so far as the company's side is concerned at least all the facts which affect going concern value are already in the case ; and that for a witness, no matter what his experience or wisdom, to undertake now to derive conclusions from that evidence or state them as conclusions, would be merely stating what appears to him to be the effect of the evidence already introduced in the case. That, as we conceive it, is not the proper scope of opinion evidence. It seems to us that the question is one of argument, one of reasoning conclusions to be derived from the facts in the case. It may be that, in the final consideration of the case, all of the reasons which Mr. Wheeler thinks support his conclusion would be properly presented to us as arguments from the facts proven ; that is to say, take the whole case, take the history of the company, take the number of water takers, take the income—take all of these separate and individual facts which have been declared here one by one, and then how much weight or effect should be given to these facts as affecting the value of the structure because it is a going concern is a matter of argument, of reasoning, and not a matter of opinion evidence ; and in that light we exclude the question asked, and shall exclude questions of a similar character.

"It may be summarized in this way: It is not competent for the witness to tell us what his conclusions are from the evidence, but we are the ones to draw our own conclusions after argument."

It is submitted that the rulings of this Board of Appraisers are entitled to great weight on account of the thorough mastery of the subject shown to be possessed by its chairman by the opinions in the Waterville and Brunswick cases. The rule laid down by the last paragraph above quoted applies with equal force to all ele-

ments of value. If it is followed in this case, many of the conclusions of complainant's witnesses are clearly incompetent, and must be disregarded.

Mr. Hering's ideas of the methods employed by expert witnesses in arriving at the values of properties of this character are given in the following testimony:

"XQ. 1447. The whole question of value and income upon value is a question of business, is it not?

"A. Where it cannot be determined by simple calculation.

"XQ. 1448. It is not a question of hydraulic engineering, is it?

"A. Not of hydraulic engineering, pure and simple, no, sir" (p. 3676).

And:

"XQ. 1172. How would you determine their market value as water works properties?

"A. I personally?

"XQ. 1173. Yes, what would be your judgment?

"A. I would endeavor to get the best evidence I could on that subject. Not being engaged in the real estate business I would endeavor to collect all possible information I could on that subject.

"XQ. 1174. If, under our assumed state of facts, such a company had all the sources of supply there would be no criterion, would there?

"A. I think there would be a reasonable criterion.

"XQ. 1175. What would it be?

"A. I do not think any one party can own all the reservoir sites in the whole State, or in similar localities of other States. I think there would be a way of getting at a fair and reasonable value.

"XQ. 1176. How? If, under our assumed state of facts they had all the sources of supply, whereas, there might be reservoir sites and water shed lands in other parts of the

State, yet, would you say that a comparison with those lands and reservoir sites in other parts of the State, that is, what they would naturally be bought and sold for, would be a fair measure of the value of those that were used to supply a municipality under our assumed state of facts?

"A. It depends upon circumstances. I think that reasonable men could come to a reasonable conclusion regarding the value of such properties.

"XQ. 1177. That is just what we are trying to get at, a reasonable conclusion; I would like to have you let us know what your judgment would be as to the method to get at that?

"A. That is not specifically an engineering question?

"XQ. 1178. No, but it is a question of value, is it not, a question of value of water works properties?

"A. And it is a part of the value, it is one part where we have to rely upon the opinions of men engaged in that particular business, just as in other parts we have to rely upon chemists, still other parts upon doctors, still other parts of our work upon the judgment of bacteriologists. An engineer cannot be a specialist on all these matters; he must endeavor to find out the best sources of information and obtain them and compare them and adapt the results to his own work in as reasonable and as fair a manner as he can.

"XQ. 1179. What sort of expert would the engineer consult in attempting to arrive at the value of such lands and water rights?

"A. He would consult those who have had experience in that particular line of business, purchasing and selling land for water works purposes, and land for reservoir sites, and so on.

"XQ. 1180. Did you consult any such in arriving at the values you have put upon the properties of this company?

"A. I consulted this company. I also verified the results by some information that I got from other sources; one was from City Engineer Grunsky.

"XQ. 1181. In what particular?

"A. I cannot give you the particulars.

"XQ. 1182. Did you gather that from his published reports or documents?

"A. I believe I read some valuation he had made in print or in manuscript, I am not sure which. I also had some conversation with other engineers about values, not of land generally, but of reservoir sites.

"XQ. 1183. What other engineers?

"A. I think one was Mr. Hammond Hall; it was some years ago. I think there were one or two others. I got a general idea of what such properties were worth, and I found that coincided with the opinion held here and testified to by Mr. Schussler regarding the value of reservoir sites" (pp. 3627-9).

The above testimony shows the methods employed by engineers as expert witnesses. Not being themselves familiar with the different factors of which the value of the properties are made up, they pursue inquiries among those who are, and from the information thus gathered they draw their conclusions, which they submit to the Court. These are of little value, and the law requires that, instead of such conclusions, the Court be furnished with the facts from which they are drawn by the persons who are familiar therewith or skilled therein.

The recent characterization of this class of testimony by Justice Moody in the Knoxville case as "That 'most unsatisfactory evidence, the testimony of expert 'witnesses employed by the parties,' is significant (29 *Sup. Ct. Rep.*, 154).

FOR THE REASONS ABOVE GIVEN, IT IS SUBMITTED THAT NO WITNESS PRODUCED BY COMPLAINANT HAS FURNISHED ESTIMATES UPON WHICH A JUDICIAL FINDING OF THE VALUE OF COMPLAINANT'S PROPERTIES CAN BE BASED. IT IS APPARENT THAT IF THE TESTIMONY OF NO ONE WITNESS, BY ITSELF, IS SUFFICIENT FOR THIS PURPOSE, A VALUE CANNOT BE FOUND BY A COMBINATION OF THE DIFFERENT ESTIMATES. JUDICIAL DECREES ARE BASED UPON CERTAINTIES. ON A FINAL HEARING OF THIS CHARACTER COURTS CANNOT FIX AN ARBITRARY VALUATION SOMEWHERE BETWEEN THE MAXIMUM AND MINIMUM ESTIMATES OF A SINGLE WITNESS OR OF ANY NUMBER OR COMBINATION OF WITNESSES. IF COMPLAINANT DESIRES A JUDICIAL DETERMINATION OF THE VALUE OF ITS PROPERTIES, IT IS INCUMBENT UPON IT TO PROVE THAT VALUE BY EVIDENCE WHICH PRODUCES CERTAINTY. THIS IT HAS SIGNALLY FAILED TO DO. AS ITS ENTIRE CASE RESTS UPON THE VALUE OF ITS PROPERTIES, FAILURE TO PROVE THAT VALUE IS FATAL TO THE CASE. THEREFORE THE PRAYER OF ITS BILLS OF COMPLAINT SHOULD BE DENIED, THE PRELIMINARY INJUNCTIONS HERETOFORE ISSUED SHOULD BE DISSOLVED AND THE BILLS DISMISSED.

DEFENDANTS' CASE.

The evidence relied upon by defendants consists of the testimony of three expert engineers, Messrs. J. H. Dockweiler, C. E. Grunsky, and Desmond Fitzgerald; an expert chartered accountant, Mr. A. Wenzelburger; four witnesses who had participated in the construction of portions of complainant's plant, Messrs. Emery, Higgins, Carey and Fifield; and one hundred and seven (107) exhibits.

MR. J. H. DOCKWEILER.

On page 344 of complainant's brief it is stated that Mr. Dockweiler's estimates are based entirely upon primal cost of the properties. This is erroneous. Mr. Dockweiler was asked, in the first place, for his estimate of cost, and gave the detailed items on pp. 602 to 612; stating his totals for cost of the entire system on page 643 as follows:

"The cost of the properties in use, as shown by the construction account of the Spring Valley Water Works, as brought down by Mr. Wenzelburger, on January 1st, 1904, was \$26,925,133.32. Property out of use, included in said construction account, \$4,044,670.61. Net construction account of the property in use, January 1st, 1904, \$22,880,462.71. If permanent improvements made during 1903 are deducted, as shown by expert Wenzelburger's report, and which amount to \$680,767.01, the cost of the works in use January 1st, 1903, would be \$22,199,695.70."

He was then asked (p. 643) :

"Have you made any estimate *of the present value* of the works of the Spring Valley Water Company?

"A. Yes, sir.

"Will you give that?

"A. January 1st, 1904, \$24,053,390."

And on page 647, in response to question 197,—

"Will you give the various large items that go to make up your estimate of the present value of \$24,053,390?"

the witness gave the values of the different portions of the plant. For some reason, best known to himself, counsel for complainant declined to cross-examine Mr. Dockweiler on his estimates, dismissing him with the simple remark, "No cross-examination" (p. 648).

These estimates, both of cost and present value, therefore stand unchallenged by cross-examination, and are entitled to all the weight which an exhaustive and thorough investigation of the problem by a competent engineer gives to them.

On page 331 of complainant's brief an attempt is made to supply by innuendo what should have been obtained, if possible, by cross-examination and to discredit Mr. Dockweiler's qualifications as an engineering expert by the statement that his experience was obtained in "work done by him as a subordinate to other engineers on comparatively unimportant work." An examination of pages 500 to 505 of defendant's testimony will disclose that this witness was City Engineer of the City of Los Angeles from 1891 to 1895 inclusive,

and from 1897 to 1898 inclusive, a total period of six years; that during that period he made the first report, and also the final complete plan of the proposed water works for the city; and constructed a large outfall sewer from Los Angeles to the Pacific Ocean, which necessitated the construction of several tunnels; that his estimate of the cost of this work was \$400,000 and the actual cost \$395,000; that he designed and constructed the Broadway tunnel in Los Angeles, two viaducts across the Los Angeles river, and had charge of all of the diversified work of a city engineer's office in a growing city; that he made a complete appraisalment of the value of the properties of the Los Angeles water works, which was made the basis of official action in that city in the matter of the purchase of such works; that for twenty-four years prior to giving his testimony he had been engaged in various branches of engineering and allied occupations, and during that time had risen from the position of a student to that of a consulting engineer in general professional practice; and that he had devoted his entire time from January 12, 1904, to the date of his testimony (November 29, 1905), a period of nearly two years, to a study of the properties of complainant and the various problems involved in this case.

If complainant believes that the competency of an engineering expert depends upon theoretical or college training, with little or no practical personal experience in the lower branches of the profession, there may be some justification for these reflections. If, however, complainant is willing to have the witnesses in this case

judged by the accepted theory of practical men, viz., that the best possible school is the school of experience, the insinuations upon the qualifications of this witness are entirely uncalled for and unwarranted. We venture to assert that there is no one man living to-day, with the possible exception of Mr. Schussler, who has as complete, thorough, practical and exact a knowledge of the cost and present value of the complicated properties of the complainant company as Mr. Dockweiler. The very thoroughness of this knowledge probably furnishes the reason why counsel for complainant did not care to cross-examine him. Mr. Dockweiler describes his preliminary investigations as follows:

“I have made an inspection of all the physical properties in use, and driven over the land of the Spring Valley Water Company. I have made two general trips of investigation over the properties of the company, and have, besides, inspected the various physical properties in detail. I have had a complete copy made of the minutes of the San Francisco City Water Works, the Spring Valley Water Works and the Spring Valley Water Company, up to September 15, 1905, from books which were shown me by the officers of the company as the original minute books of the various corporations. I have had copies made of all the deeds which the officers of said company presented to me as being deeds of properties that were in use by the said company. These aggregated something in the neighborhood of five hundred. I then made maps, by platting the descriptions set forth in each deed, so that the location of each separate piece of property has been known to me and its boundary and position determined; each piece of land being given a distinctive coloring so that its boundaries could be readily recognized and placed. I have likewise made a map showing the location of all the water rights of said company in the Cala-

veras and Alameda systems as far as said deeds indicate. These maps show the cost of each piece of land as set forth in the inventory filed by said company with the Board of Supervisors, and a copy of which is printed in the Municipal Reports of San Francisco for the year 1900-01. I have had copies made of various structures, the drawings of which were furnished to me by the engineer's office of the Spring Valley Water Works. I have prepared a drawing showing the graphic area of the Crystal Springs dam in comparison with other well known dams of the world, which comparison sets forth graphically and by tables the relative area of said dam with the completed dams which were then in existence at the time that the said Crystal Springs dam was built, and giving in addition the section of the Croton Water Works dam, since built, and a section by Wegman, who is considered the leading authority on dams in the world. To the extent that the drawings were received from the Chief Engineer, computations were made of the materials which entered into the construction of those structures. Under my direction an accountant made an examination of the books of the Spring Valley Water Works from the beginning of said company to the first of January, 1904. This examination was as complete as the facilities of the office afforded, but lacked a great many elements, owing to the fact that several cash books were missing, which prevented an analysis of the items and allowed only for journalized entries covering such periods of omission. The books of the San Francisco Water Works were not examined by this accountant, but I have read the testimony of Mr. Reynolds, the expert accountant on behalf of the Spring Valley Water Company, concerning the books of the San Francisco Water Works. In former investigations before the Board of Supervisors the officers of the company stated that they never had those books. The accountant's report to me shows that the Spring Valley Water Works was operating by means of an auxiliary company, known as the Suburban Water Company. Large sums of money for land and for structures were paid to this company by the Spring Valley Water

Works. The details, other than the sum charged, were not available, as the officers of the company did not deem it expedient to permit an examination of these books by the representatives of the city" (pp. 506-8).

Mr. Dockweiler then stated his reasons for believing that the complainant could have furnished the actual cost and construction figures of its properties, if it had so desired, as set forth on pages 463-5 of this brief, and continues:

"I have investigated the question of rainfall and runoff in the neighborhood of San Francisco, and especially the area in which lie the properties of the complainant herein. I have examined the reports of the Tuolumne, and have familiarized myself with the conditions relative to the rainfall and runoff of that watershed which is proposed for the water supply of San Francisco. I have made a personal examination of the surveyed route and reservoir site of Mr. Grunsky's proposed Tuolumne project. I have also made a careful examination of Mr. Grunsky's proposed scheme, and have examined and checked his estimates in connection with Mr. Grunsky himself, having him explain to me the reason why he made the allowances that he did in his estimate. I have collected data from all over the United States concerning the rates charged to the consumers of water. In fact, I have made a very complete and careful study, extending over nearly two years of the various problems involved in the relations between the Spring Valley Water Company and the City and County of San Francisco" (p. 510).

Mr. Dockweiler's estimate of the present value (as of January 1, 1904) of the complainant's properties is

\$24,053,390. The appraisements of the different systems are given on p. 647 of defendant's testimony. If complainant had wished to ascertain further details as to these figures or the information or investigation on which they were based it could have easily obtained them by inquiry upon cross-examination. The burden of proof being upon complainant, and these estimates varying so largely from those of complainant's witnesses, it is strange, indeed, that such request was not made. This valuation is unchallenged, unless the testimony of other witnesses shows errors therein; and there is nothing in this voluminous record which can be taken as convincing proof of such error.

It is noticeable that this estimate includes seven and one-half per cent upon the structural properties to cover engineering, etc., and interest during construction for an average time of two years at five per cent.

Two items appear in this appraisalment under the heading, "Alameda Creek System." The evident explanation is that the first refers to the structural properties and the second to the lands.

MR. C. E. GRUNSKY.

Mr. C. E. Grunsky was City Engineer of San Francisco from 1900 to 1904, resigning to accept a presidential appointment as Panama Canal Commissioner, earned by the thoroughness of his work here and elsewhere. He made annual appraisements of properties of complainant from 1901 to 1904, based upon independent and exceptionally thorough studies of its properties (pp. 156-7). His estimates, based upon four years of official investigation of complainant's properties, and with the advantage of a long prior residence and professional practice in San Francisco and vicinity are of far greater value than those of engineers whose experience had been obtained in other parts of the country, and whose acquaintance with the properties was comparatively recent and incomplete.

All the witnesses and attorneys in this case are agreed in awarding Mr. Grunsky an eminent standing among American engineers. No one questions his ability, thoroughness and fairness to all parties. He was recommended to the President for appointment upon the Isthmian Canal Commission by Mr. Hering, one of complainant's witnesses (p. 3780). His testimony discloses more of the judicial temperament and attitude than is often found in the evidence of expert witnesses. Realizing the force of his evidence (and possibly with a consciousness of the weakness of their own case), counsel for complainant have endeavored to increase his appraisements from \$24,673,212 and \$28,024,389, re-

spectively, to \$44,534,600, by as ingenious and sophistical a set of figures as have ever been used for a similar purpose. This attempt is summarized on pages 503 and 506 of complainant's brief, and merits but brief comment. As shown elsewhere in this brief, the effort to establish the value of this property by comparison with an assumed substitutional system is unreliable, uncertain, misleading, and altogether inconclusive. As stated in the decision in the 1908 case, this method of valuation "is at best problematical." When a comparison is sought not with the estimated substitute as a whole, but with segregated portions thereof, as is done in the argument referred to, the difficulties of the problem are multiplied. To base a value of portions of complainant's properties upon what they might save in the construction of another system, is subject not only to all the objections which can be urged against this method of valuation, as a whole, but also to the additional objection that such a process assumes that the supposed substitutional system would be but partly constructed and that the builders thereof would be permitted to select from complainant's properties such portions thereof as they might choose to use. Counsel do not say that complainant would dispose of these portions of its plant, even at the exaggerated valuations which they thus place upon them; nor do they inform us as to what is to become of the remainder of the present plant if such a combination should take place. The assumption that the present plant could be split up

in this manner does not commend itself as a basis of valuation.

The estimate of franchise value used in this computation (\$5,300,000) is the assessment placed thereon for purposes of taxation in the fiscal year 1903-4. This method of valuation of franchises is discredited in the recent decision of the Supreme Court in *Willcox vs. Consolidated Gas Co.*, and disappears entirely under the rules laid down in the 1908 decision. The alleged additional valuations for going concern, skill, excellence, etc., are discussed and, we believe, disposed of elsewhere in this brief.

The only other criticism of Mr. Grunsky's estimates is that he failed to recognize the full value of the Alameda system for the reason that he valued the lands and water rights included in that portion of complainant's properties at their cost instead of at a larger figure. As to water rights, the figure adopted by Mr. Grunsky for the peninsula properties was \$40,000 per million gallons of daily delivery (p. 345). This was a matter of opinion and no definite principle was applied. It is explained by the witness as follows:

"XQ. 97. Did you value the water rights in the Alameda Creek system on the same valuation, per million gallons, as you did on the peninsula system?

"A. They were entered into the report as cost as the cost was reported by the officers of the company, and not on a valuation assumed by me.

"XQ. 98. Would it have made any difference in the valuation of the Alameda Creek system had you adopted the same principles there that you did in reference to the peninsula system?

"A. There was no specific principle adopted for the peninsula system. It was simply a matter of opinion.

"XQ. 99. If you adopted the same methods or opinions in valuing or appraising the Alameda Creek system, would it have made any difference in those figures?

"A. My opinion would have been based upon what I could learn as to the cost, and would have been so entered in the valuation of the Alameda Creek system.

"XQ. 100. You would not have allowed anything, per million gallons, difference for the one or the other?

"A. I think the allowance is different.

"XQ. 101. It is different per million gallons?

"A. I have not determined that. I do not know what it is.

"XQ. 102. What is your judgment on that subject, from your figures?

"A. I do not think that water can be valued arbitrarily. It is, of course, a method of reaching a conclusion as to the aggregate.

"XQ. 103. Have you ever adopted it anywhere?

"A. I have, several times.

"XQ. 104. In what instance have you adopted that?

"A. There was one instance in the case of the San Diego Water Works appraisalment.

"XQ. 105. When you valued the peninsula system, 18,000,000 gallons per day, you used the basis of \$40,000 per million gallons, did you not?

"A. Yes, sir.

"XQ. 106. Where did you get that figure, \$40,000 per million gallons?

"A. That was a matter of opinion, that that would be a reasonable allowance for the water rights acquired; that it would be a reasonable assumption that these water rights had cost the company that amount.

"XQ. 107. On what did you base that opinion?

"A. As I explained, in the general familiarity with the situation on the peninsula.

"XQ. 108. Did you compare it with any other water sources, or the cost of the production of water from other water sources?

"A. Yes, sir.

"XQ. 109. What others?

"A. That was explained in my report which we read a moment ago, the report that was made in 1901. At that time I endeavored to use the cost of bringing in water from other sources as a basis for fortifying myself in reference to the value to be placed upon lands and water rights" (pp. 344-6).

The allowance made for water rights in the Alameda Creek system is in excess of the amount which would have been allowed if the same figure had been adopted as is used in the Peninsula system, as appears from Mr. Grunsky's report of January 30, 1903 (pp. 161-2), as follows:

"Full justice will, it is believed, be done in making the appraisalment of properties in actual use if the lands be estimated throughout at the average cost per acre of recent purchases, together with an allowance for the amount of water which the records indicate can be relied upon from these sources, not including the undeveloped storage supply from Calaveras Valley and other sources.

"This allowance for water rights, if estimated on the basis heretofore adopted—\$40,000 per million gallons of daily delivery—would fall somewhat short of the actual expenditures in water right purchases on the Alameda Creek system. These purchases, apart from the Calaveras purchase which will gradually acquire value as it is brought into use, were necessary to enable the sources of supply at and above Sunol to be developed, but are in part to the credit of water not yet made available. It has been thought proper, however, to appraise them at about the cost of the recent purchases made by the Spring Valley Water Works along Alameda Creek from Niles to San Francisco Bay."

The principal difference between the basis of valuation adopted by this witness as to the two portions of

complainant's property is as to the method of ascertaining land values. In the Peninsula system Mr. Grunsky made liberal estimates of what he considered the present value of such lands. In the Alameda system he considered the cost price to be the best evidence of value for the reason that the purchases had been made at comparatively recent periods. As to the city and peninsula lands, he said:

"My appraisement of the lands owned by the Spring Valley Water Company in San Francisco, now in use, including the Lake Merced properties, was based on valuations placed upon these lands by real estate experts. The valuation of lands outside of San Francisco, and of water rights, represents my own personal opinion and judgment. Suitable allowances have been made to cover unknown conditions prevailing at the time of the construction of the works. These allowances are in many cases large. The several appraisements made by me were intended as aids to the Board of Supervisors in fixing the value of the water company's properties on which they should allow interest. They are a check on the reliability of the information relating to cost of acquiring and constructing works as furnished by the water company" (p. 159).

Regarding the liberality of his appraisement of these lands, Mr. Grunsky said again:

"The same is true of the valuation which I have placed upon the lands and water rights of the peninsula system; I think that those allowances were extremely liberal.

"XQ. 123. In your opinion, were they proper?

"A. They were proper in determining the amount which would be a reasonable allowance for the cost of the works. I think I have already stated several times that if I had satisfactory information as to the cost of works, I should prefer to use cost of works as the basis of valuation for rate-fixing purposes" (pp. 348-9).

As to the Alameda Creek system cost prices were used, and *Mr. Grunsky's opinion as to the permanent serviceability of the Sunol filter bed* (concerning which much is said by complainant's counsel) *made no difference whatever in his estimate.* This is shown by his testimony on page 344, which is as follows:

"XQ. 93. Did you make any difference in estimating the value of the Alameda Creek system because you did not believe in the permanent serviceability of the Sunol filter bed?

"A. No, sir; that was not taken into account. I simply appraised the cost of reproducing the works, and then added the investment that had been made for lands and for water.

"XQ. 94. Did you estimate the Alameda Creek system on precisely the same basis and upon the same principles as you estimated the peninsula system?

"A. No, sir.

"XQ. 95. What difference did you make, and why?

"A. I lacked information in the case of the peninsula system. I was generally familiar with the conditions that prevailed on the peninsula. I had made examinations at various times that enabled me to form an opinion and to reach my conclusions as to what would be a reasonable allowance for the lands and water rights. I found it extremely difficult to separate the one from the other and, using my own judgment, I applied a valuation. That was introduced into the report as a rate per acre, and as an allowance per million gallons of water development.

"XQ. 96. And the Alameda Creek system?

"A. On the Alameda Creek system cost is substantially the basis of the estimate."

Cost price is the best possible evidence of value when sales are of recent date. This is recognized by the Supreme Court in *Dow vs. Biedelman*, 125 U. S., 680, referred to elsewhere in this brief, and further authori-

ties are cited under the discussion of legal principles in the first part of this brief.

Mr. Grunsky's estimates should, therefore, be taken at the figures he himself gave and not with the fanciful and labored elaborations sought to be added thereto by opposing counsel. His estimates are subject, however, to the same objection that applies to all this character of evidence, viz., that it is a mere matter of opinion. He himself says that an arbitrary valuation should not be given to water rights, and that he found it extremely difficult to separate one species of valuation from another. As pointed out in the above testimony, he would have much preferred to have based his estimates on cost if that had been possible. Having failed to produce these cost figures, as it might have done, complainant cannot now rely upon this opinion evidence as proof of the values of its properties.

In 1903 Mr. Grunsky, in response to a request from the Board of Public Works, suggested a valuation of \$2,500,000 for franchise and \$1,400,000 for "value due to the fact that the business is an established one." Under principles and authorities elsewhere discussed, it is submitted that neither of these items are allowable. Neither were included by Mr. Grunsky in the estimate of the next year. Deducting this \$3,900,000 from the 1903 estimates, the appraisements for the two years are as follows:

1903.....	\$24,124,389.
1904.....	24,673,212.

MR. DESMOND FITZGERALD.

Mr. Fitzgerald's estimates, it is true, are based upon his computations of the original cost of the properties. These computations were made, however, by an engineer, who had the benefit of long experience with this class of properties. In explanation of his figures, Mr. Fitzgerald said:

"XQ. 318. Is there anything in that that is independent of the books and statements?

"A. No, except that it is not a mere blind following of any statements of the company.

"XQ. 319. No, I did not say that.

"A. There were some mistakes which are corrected. I remember one piece of land, which, I think, was left out entirely.

"XQ. 320. What I was getting at was this, in the end all these estimates are the results of examinations of statements made by the company, or its officers, and of testimony given by the officers of the company, and not the results of an independent investigation made by you of the unit of cost at the time of the various constructions or acquisitions?

"A. That is in a large measure true, although, of course, I used my judgment all the way through, founded on a very long experience, of checking the totals; then I considered too that I also had a very valuable check on the summary of the whole by the fact that it closely coincided with the total actual amount of cash, as far as I could see from the accounts of the company, put into the works.

"XQ. 321. Did that experience which you have had enable you to estimate the proper cost at the time of the acquisition of lands and water rights which are in consideration in this case?

"A. No, except as I am familiar with such purchases for such purposes.

"XQ. 322. Do you mean here?

"A. No, in general.

"XQ. 323. Not in this State at all?

"A. No" (pp. 483-4).

These estimates are of value in comparison with the other estimates of cost, and also for the purpose of establishing a starting point from which present value must be determined. In the San Diego case, Judge Van Fleet held that the original investment was the proper basis of valuation in cases of this character. That rule has not been followed in the later cases, but we still contend that primal cost is a very important element in determining present value in these cases. The rule of the San Diego case has been modified only to the extent that the value of the investment is to be determined at a different time, but it is still *the investment* which is the controlling factor. The amount of investment may be increased by appreciation of real estates values, or it may be lessened by depreciation of structural properties; but the value to be allowed is the present worth of the investment. This matter is discussed elsewhere in this brief, but is again referred to in this connection under the conviction that failure to recognize this principle is the cause of much confusion in attempts to capitalize so-called intangible elements of value, which belong to the public and not to the public-service corporation.

If the primal cost of complainant's properties is established by the evidence in this case at a very much

less figure than is now claimed to be the value of the properties, the burden is upon complainant to prove the amount of increase of value from such original investment. This burden has not been met.

Mr. Fitzgerald's estimate of the value of complainant's properties which are presently in use, based on their cost, is \$22,736,643.55.

The cost of the same properties as arrived at by the expert accountants is set forth on page 92 of this brief as follows:

Mr. Reynolds	\$22,270,687.70
Mr. Wenzelburger	22,279,689.23

MESSRS. HIGGINS, EMERY, CARY AND FIFIELD.

The four witnesses above named participated in the construction of portions of complainant's works in the Peninsula System. The evidence of these witnesses has been fully dealt with in other parts of this brief and no attempt will be made at this point to repeat what is there stated. The comparisons between the evidence of these contractors and workmen and the testimony of Mr. Schussler as to the method of construction of some of these works, the source from which material was obtained therefor, the number of workmen employed and the cost of construction are startling. It is to be noted that wherever any record is contained in the minutes of the complainant as to the matters testi-

fied to by Messrs. Higgins and Emery, such record fully corroborates their testimony; and that Mr. Schussler's estimates and testimony are not only uncorroborated but are definitely contradicted by the official record contained in the minutes. It is further to be noted that many of Mr. Higgins' statements as to the average number of brick laid per man per day are fully corroborated by Messrs. Adams and Schuyler.

The evidence of the four witnesses above named is very valuable in corroboration of the data contained in the minutes and as being the only source of information contained in the record other than in the minutes, account books and contracts as to the method of construction and original cost of complainant's structures.

DEFENDANTS' EXHIBITS.

The defendants introduced in evidence 107 exhibits, a list of which has been printed and is attached to this brief as a second appendix. Seven of these exhibits have been photographed and a bound copy of such photographs is filed as an addenda to this brief. Six of said exhibits show details concerning complainant's lands and water rights, which are not shown by the complainant's exhibits. A seventh (Exhibit No. 88) contains a graphic comparison between the area of the Crystal Springs Dam and other well known dams. The nature of the other exhibits is shown by the list attached as an appendix to this brief, and the originals are all on file and reference is made thereto.

THE BEST EVIDENCE OF VALUE.

Defendants contend that the most certain and therefore the most reliable evidence of value of complainant's properties to be found in the record in this case is derived from the three following sources and that the weight and reliability of the different classes of evidence is in the order hereinafter named, to wit:

First. The amount for which the whole of the properties were sold by the Spring Valley Water Works to the Spring Valley Water Company in 1903.

Second. The actual cost price of the properties with such modifications for appreciation of real estate and depreciation of structural values as are warranted by the evidence.

Third. The estimates of those expert witnesses who were most familiar with local conditions and made the most thorough examination of complainant's properties and whose bases of valuation commend themselves as being most reasonable and trustworthy.

These three classes of evidence above indicated will be discussed separately:

I.

THE PRICE FIXED BY SALE OF 1903.

The Supreme Court has decided that the reasonable sale price is evidence, and more important evidence

than original cost, of the value of properties of this kind in the case of

San Diego, Etc., Company vs. Jasper, 182 U. S., 439.

In that case the Court says:

"The property of the company and its predecessor consisted, not only of the water works, but of a large amount of land. On the evidence the water works may be estimated at about a quarter of the total value. The earlier company was unable to raise the money it needed. Its bonds for \$500,000, secured by mortgage, were not worth more than 95, and an attempt to raise a further loan on mortgage failed. The whole amount that the market and interested stockholders were willing to lend on all the security it could offer was \$650,000. The company was put into the hands of a receiver, who issued some certificates, which, we infer, were made a paramount lien. Then, by arrangement with the stockholders who were willing to go on, the mortgage was foreclosed and all the property was sold to those stockholders, for the nominal sum of \$889,163.33, which was equal to the amount of outstanding certificates and bonds, and was paid by turning them in. This was in 1897, a few months before the passage of the ordinance complained of. The purchasers organized the present corporation and the above mentioned sum is the cost of the land and water works to it. The appellant protests that this is not a fair value for the property of the company. We doubt whether it is not a liberal allowance. The officers of the two companies at the time thought that they got more than they could have got in any other way. But at all events, it is decided that the price is evidence, we might say more important evidence than the original cost. *Dow vs. Beidelman*, 125 U. S., 680. If the Supervisors were convinced by it we certainly could not say, as matter of law, that they were wrong."

The Spring Valley Water Company was organized in April, 1903, and during the next few months acquired the properties of the Spring Valley Water Works. The Boards of Directors of these two companies were constituted of entirely different persons and the records hereinafter submitted show that the two companies dealt with each other at arm's length in the transfer of the properties.

The chronological history of that transfer as shown by the Minute Books of the two companies was as follows: The references to the Minute Books are to Minute Book "A" of Spring Valley Water Company and Minute Book "F" of the Spring Valley Water Works.

June 15, 1903. A resolution was adopted by the directors of the Spring Valley Water Company offering to purchase from the Spring Valley Water Works all of its business, franchises and property as a whole, subject to all outstanding incumbrances secured by mortgage or deed of trust, for the sum of \$11,480,000, payable without interest on June 19th, 1908 (Minute Book "A", page 11).

That offer was communicated to the directors of the Spring Valley Water Works who held a meeting upon the same day, at which meeting said offer was read and by resolution of those directors a meeting of the stockholders of the Spring Valley Water Works for consideration of such offer was called for July 15th, 1903 (Minute Book "F", pp. 403-4).

June 19, 1903. The directors of the Spring Valley

Water Company passed the following resolutions (Minute Book "A," pp. 15-21):

"Whereas, the offer of this company to purchase from the Spring Valley Water Works, a corporation, all of its business, franchises and properties, as a whole, upon the terms stated in the resolutions adopted at said meeting of June 15th, 1903, and embraced in a letter to said Spring Valley Water Works, a copy whereof is set forth in said resolution, has not been accepted by said Spring Valley Water Works:—

"Resolved, That such offer be withdrawn, and that the same is hereby revoked.

"Resolved, That the said Spring Valley Water Works be forthwith notified by the President and Secretary of this Corporation of such withdrawal and revocation of said offer.

"Resolved, That the consent of said Spring Valley Water Works to such withdrawal and revocation be requested, so that no question in the future in reference thereto can be raised."

"On motion of Director Heller, seconded by Director Allen, the following resolutions were unanimously adopted:

(The first portion of the resolution refers to sale of stock.)

* * * * *

"Resolved, Further, That this corporation offer to purchase from the Spring Valley Water Works all of its business, franchises and property, as a whole, and take an assignment, transfer and conveyance thereof, subject to all outstanding encumbrances secured by mortgage or deed of trust of the Spring Valley Water Works, provided, that all creditors of said Spring Valley Water Works, saving those whose claims are secured by mortgage or deed of trust, shall release said Spring Valley Water Works from all claims, and shall accept in payment of such claims the obligations of this corporation in equal amounts and terms, and, provided that such sale, assignment, transfer and conveyance be consented to by two-thirds of the stockholders of said Spring Valley Water Works as provided in Section 361a of the Civil Code of California.

"Resolved, Further, That the consideration for such as-

signment, transfer and conveyance herein mentioned, shall be as follows: that this corporation will pay to the said Spring Valley Water Works a sum of money, in gold coin of the United States, on June 19th, 1908, equal to the sum of Eighty-Two (\$82.00) Dollars for each and every share of the Spring Valley Water Works that this corporation does not acquire by the 19th day of June, 1908; and that this corporation will release said Spring Valley Water Works of and from all dividends upon any shares of the said Spring Valley Water Works which it may acquire by the 19th day of June, 1908; and that this corporation will further release said Spring Valley Water Works of and from all right or claims to its proportion of the capital of said Spring Valley Water Works, which this corporation may be entitled to receive hereafter upon dissolution of said Spring Valley Water Works, upon the shares of said Spring Valley Water Works, which it may hereafter acquire.

“Resolved, Further, That this corporation shall and will and does hereby consent that upon any and every distribution of any and all money or property of the Spring Valley Water Works to which the stockholders of said Spring Valley Water Works may become entitled, whether upon a dissolution of said Spring Valley Water Works, or otherwise, all of said moneys and property shall and may be distributed wholly among the stockholders of said Spring Valley Water Works whose shares of stock in said Spring Valley Water Works this corporation does not or shall not acquire before the said 19th day of June, 1908.

“On motion of Director Kellogg, seconded by Director Heller, the following resolution was unanimously adopted:

“Resolved, That the President and Secretary of this corporation be and they are hereby authorized and directed, in the name of this corporation, to make the offers and propositions contained in the foregoing resolutions to the said Spring Valley Water Works, by delivering to the Board of Directors of said Spring Valley Water Works a certified copy of the foregoing resolutions together with the following letter, to wit:

"OFFICE OF THE SPRING VALLEY WATER COMPANY.

"June 19th, 1903.

"To the Spring Valley Water Works:

"We hand you herewith certified copy of resolutions, duly adopted by the Board of Directors of this corporation at its meeting held this day, and this company hereby offers to purchase from the said Spring Valley Water Works all of its business, franchises and properties, as a whole, and take a conveyance, assignment and transfer thereof, upon the terms and subject to the conditions contained in said resolutions; provided that such sale, assignment, transfer and conveyance be consented to by two-thirds of the stockholders of said Spring Valley Water Works, as provided in Section 361a of the Civil Code of the State of California.

"And this company also offers and proposes to dispose of its capital stock, in whole or in portion or portions as desired, to the stockholders of the Spring Valley Water Works, upon the terms set forth in said resolutions.

"This company also offers and proposes, in the event of such sale, assignment, transfer and conveyance being so made to it, as in said resolutions proposed, that it will and does consent to releases of dividends on all stock in said Spring Valley Water Works that it may acquire and to releases of all rights and claims to its proportion of the capital of said Spring Valley Water Works, upon dissolution, upon the shares of said Spring Valley Water Works that it may acquire, and shall and will and does consent that upon any and every distribution of any and all money and properties of said Spring Valley Water Works, to which the stockholders of said Spring Valley Water Works may be entitled, whether upon a dissolution of said works or otherwise, all of said moneys and properties shall and may be distributed wholly among the stockholders of said Spring Valley Water Works whose shares of stock in said Spring Valley Water Works this corporation does not and shall not acquire before June 19th, 1908.

"SPRING VALLEY WATER COMPANY.

"ByPresident.

"And by.....Secretary."

The second offer contained in the foregoing resolutions was communicated to the Directors of the Spring Valley Water Works, who held a meeting on *June 25th, 1903*, at which said second offer was submitted and the following resolutions were adopted (Minute Book "F," pp. 410-1) :

"Whereas, This corporation has received from the Spring Valley Water Company notice in writing and certified copy of resolutions withdrawing the offer made by the Spring Valley Water Company in writing to this corporation, dated June 15th, 1903, for the purchase of all the business, franchises and property, as a whole, of this corporation, on the terms set forth in said offer, and also a notice of the rescission and revocation by the said Spring Valley Water Company of the resolution adopted by its Board of Directors at the meeting thereof held June 15th, 1903, for the said purchase, and also for the sale and issue of the whole or any portion of the capital stock of said Spring Valley Water Company to the stockholders of said Spring Valley Water Works upon the terms in said resolution expressed; and,

"Whereas, The said Spring Valley Water Company has so withdrawn and revoked said offer and said resolutions on the ground that the same, and none thereof, had yet been accepted by this corporation, as well as for the purpose of making a new offer and of adopting new resolutions in all the premises; and

"Whereas, The said Spring Valley Water Company has, for the purpose of ending all questions in the premises, requested the consent of this corporation to such withdrawals and revocations:

"Now, Therefore, Resolved, That such withdrawals and revocations of said letter and offer, and each and all of said resolutions, be and the same are hereby consented to by this corporation.

"On motion of Director Symmes, seconded by Director Quay, the following resolution was unanimously adopted:

"Resolved, That the resolutions adopted by this Board

at its regular adjourned meeting, held June 15th, 1903, at 9:30 A. M., for the purpose of considering and acting upon the offer made to this corporation by the Spring Valley Water Company for the purchase of its business, franchises and property as a whole, and all proceedings and resolutions in that behalf, be and they are hereby withdrawn, revoked and rescinded."

At that meeting the second offer was further considered and a new call for a stockholders' meeting to be held on July 15th, 1903, was issued.

On July 13th, 1903, the Directors of the Spring Valley Water Company again met and passed the following resolutions (Minute Book "A," pp. 23-5) :

"Resolved, That this corporation offer to purchase from the Spring Valley Water Works, a corporation, all of its business, franchises and property, as a whole, and take assignment, transfer and conveyance thereof subject to all outstanding encumbrances secured by mortgage or deed of trust made by said Spring Valley Water Works for the sum of Twelve Million Six Hundred Thousand (\$12,600,000.00) Dollars, Gold Coin of the United States, payable without interest on June 19th, 1908, provided that all creditors of said Spring Valley Water Works, saving those whose claims are secured by mortgage or deed of trust, shall release said Spring Valley Water Works from all claims and shall accept in payment of such claims the obligation of this corporation in equal amounts and on the same terms, and provided that said sale, assignment, transfer and conveyance be consented to by two-thirds of the stockholders of said Spring Valley Water Works as provided in Section 361a of the Civil Code of California.

"Resolved, Further, That the President and Secretary of this corporation be and they are hereby authorized and directed in the name of this corporation to make the said offer in writing to the said Spring Valley Water Works in the words and figures following:

“OFFICE SPRING VALLEY WATER COMPANY.

“July 13th, 1903.

“To the Spring Valley Water Works:

“In pursuance to a Resolution of the Board of Directors of the Spring Valley Water Company, adopted at a meeting of its Board of Directors held on July 13th, 1903, the Spring Valley Water Company, a corporation now existing under the laws of the State of California, offers to purchase from the Spring Valley Water Works, all of its business, franchises and property as a whole and take an assignment, conveyance and transfer thereof subject to all outstanding encumbrances secured by mortgage or deed of trust made by the Spring Valley Water Works for the sum of Twelve Million Six Hundred Thousand (\$12,600,000.00) Dollars, Gold Coin of the United States, payable without interest on June 19th, 1908, provided that all creditors of said Spring Valley Water Works, saving those whose claims are secured by mortgage or deed of trust, release said Spring Valley Water Works from all claims and shall accept in payment of such claims the obligation of this corporation in equal amounts and on the same terms, and provided that such sale, assignment, transfer and conveyance be consented to by two-thirds of the stockholders of said Spring Valley Water Works as provided in Section 361a of the Civil Code of California.

“This proposition is made as an alternate to the proposition of this company dated June 19th, 1903, and at the option of the Spring Valley Water Works and its directors and stockholders either proposition may be accepted.

“SPRING VALLEY WATER COMPANY,

“ByPresident.

“BySecretary.”

(Then follows a resolution as to sale of stock.)

* * * * *

“Resolved further, That the propositions contained in the foregoing resolutions are submitted as alternate propositions to those made by this corporation to said Spring Valley Water Works and its directors and stockholders June 19th, 1903,

and that either the foregoing proposition or the said proposition of June 19th, 1903, may be accepted by the said stockholders and directors of said Spring Valley Water Works and by said Spring Valley Water Works."

The alternate offer provided for in the last resolution was submitted to the Spring Valley Water Works and was considered together with the last preceding offer at the meeting of stockholders hereinafter referred to.

July 15th, 1903. A stockholders' meeting of the Spring Valley Water Works was held, but it was found that some of the proxies submitted at that meeting were irregular, for which reason two-thirds of the stock of the Company required for action upon the foregoing offers was not represented, and the meeting thereupon adjourned until Wednesday, July 29th, 1903 (Minute Book "F," pp. 422-30).

July 29th, 1903. An adjourned meeting of the stockholders of the Spring Valley Water Works was held, at which more than two-thirds of the stock was found to be legally represented. The last two alternate offers of purchase from the Spring Valley Water Company were read to the stockholders, together with the resolutions and correspondence transmitting the same. The minutes of this meeting (Minute Book "F," p. 462) show that the last alternate offer of purchase upon the basis of \$12,600,000 in cash, payable without interest upon June 19th, 1908, was accepted.

The resolutions accepting said offer are as follows (Minute Book "F," pp. 462-4) :

"Whereupon Stockholder A. N. Drown offered the following resolution:

"Resolved, That the proposals contained in the said letter from the Spring Valley Water Company, dated July 13th, 1903, and in the said resolutions, contained in said letter, so adopted by the Board of Directors of said Spring Valley Water Company July 13th, 1903, be accepted.

"Said resolution was seconded by Stockholder M. Adler.

"The chairman put the said resolution of Stockholder A. N. Drown to a vote, and directed that the Secretary call the roll of the Stockholders and, at such roll-call, the Stockholders of this corporation holding of record 102,858 shares of the issued capital stock thereof voted (in person and by proxy) in favor of said resolution, and the Stockholders of this corporation holding of record no shares of the issued capital stock thereof voted (in person and by proxy) against said resolution.

"The President thereupon announced that said resolution had been adopted by a vote of and consent of the stockholders of this corporation holding of record more than two-thirds of the capital stock of this corporation.

"The following resolution was offered by Stockholder T. I. Bergin and seconded by Stockholder J. M. Quay, to wit:

"Resolved, That the resolution last offered and adopted be and is hereby declared to be adopted unanimously by all stockholders present in person or by proxy.

"Said resolution being put to vote was unanimously adopted.

"Whereupon, upon motion of Stockholder J. M. Quay, seconded by Stockholder T. I. Bergin, it was unanimously:

"Resolved, That this corporation send a written acceptance of the said proposals of the Spring Valley Water Company, dated July 13th, 1903, and that said acceptance be executed by the Chairman of this meeting, and that such acceptance be made in the words and figures following, that is to say:

" 'San Francisco, July 29th, 1903.

" 'To the Spring Valley Water Company:

" 'Referring to your communication to the Spring Valley

Water Works, dated July 13th, 1903, I beg to inform you that at a meeting of the Stockholders of the Spring Valley Water Works, duly called and assembled in accordance with law and its by-laws, the proposals therein, and embodied in the resolutions therewith enclosed and in said letter, are hereby accepted.

“Yours respectfully,

“CHAS. WEBB HOWARD,

“Chairman of the Meeting of the Stockholders of the Spring Valley Water Works.’

“The following resolution was offered by Stockholder J. M. Quay, seconded by Stockholder T. I. Bergin, and, on being put to vote was carried by an affirmative vote of Stockholders voting 102,858 shares, the negative vote against said resolution being by stockholders voting no shares.

“As the same was carried by a more than two-thirds vote of all the stockholders of the corporation holding stock of record, it was declared, by the chairman of the meeting, to be duly adopted and is as follows, to wit:

“Resolved, That the Board of Directors of this corporation, by and with the consent (hereby granted) of the stockholders of this corporation holding of record more than two-thirds of its issued and subscribed or issued or subscribed capital stock, are authorized and directed to sell, assign, transfer and convey all of the business, franchises and properties of the Spring Valley Water Works, as a whole, to the Spring Valley Water Company, a corporation organized and existing under the laws of the State of California, in accordance with the terms set forth in the communication and resolutions from the Spring Valley Water Company, dated July 13th, 1903, heretofore read to this meeting, and that such Board of Directors, with such consent, are authorized to take all necessary proceedings to immediately consummate and to effect such sale, assignment, transfer and conveyance, and to execute whatever instruments, contracts, assignments, transfers, bills of sale, grants and conveyances may be necessary, proper or convenient in the premises—it being provided that such business, franchises, and properties shall be subject to the liabilities of said Spring Valley Water Works and of said Spring Valley Water

Company contracted or incurred in the operation, use or enjoyment of such business, franchises and properties, or of the privileges of such business, franchises and properties, or any or either thereof.

"Upon motion duly made, seconded and unanimously carried, it was Resolved, That a certified copy of these minutes be furnished to the Spring Valley Water Company."

July 30th, 1903. The Directors of the Spring Valley Water Works met and a full report of the previous offers and action of the stockholders thereon was submitted; whereupon the following action was taken (Minute Book "F," 510-1) :

"After the reading of the minutes, Director Symmes offered the following resolution, which was seconded by Director Quay and, being put to vote, was unanimously adopted:

"Resolved, That this corporation (the Board of Directors thereof having received full consent of Stockholders of this corporation holding of record more than two-thirds of its issued capital stock, such consent being evidenced by the vote at a stockholders' meeting—held July 15th, 1903, and adjourned to July 29th, 1903, and then held—called for the purpose of consenting to the sale, assignment, transfer and conveyance of all the business, franchises and properties, as a whole, of this corporation to the Spring Valley Water Company, a corporation organized and existing under the laws of the State of California), sell, assign, transfer and convey all the business, franchises and properties, as a whole, of this corporation, to the said Spring Valley Water Company, a corporation, in accordance with the authority and upon the consent and terms set forth in the proceedings of said stockholders' meeting (held July 15th, 1903, and adjourned to July 29th, 1903, and then held) heretofore read at this meeting and in accordance with the communications and resolutions of the Spring Valley Water Company, dated July 13th, 1903.

"Further, Resolved, That Chas. Webb Howard, the President, and Pelham W. Ames, the Secretary, of this corpora-

tion, be and they are hereby authorized and directed, in the corporate name and under the corporate seal of this corporation, to execute, acknowledge and deliver to said Spring Valley Water Company all assignments, transfers, bills of sale, conveyances and grants, or any other instruments which may be proper, necessary or convenient in the premises in effecting and consummating such an assignment, transfer and conveyance of all the business, franchises and properties, as a whole, of this corporation, to the said Spring Valley Water Company—subject to the provision that all such business, franchises and properties shall be subject to the liabilities of said Spring Valley Water Works and of said Spring Valley Water Company, contracted or incurred in the operation, use or enjoyment of such business, franchises and properties, or of the privileges of such business, franchises and properties or any of either thereof, and also subject to all outstanding incumbrances secured by mortgage or deed of trust made by the said Spring Valley Water Works.

“Upon motion duly made, seconded and unanimously carried:

“Resolved, That a certified copy of these minutes be furnished to the Spring Valley Water Company.”

September 14th, 1903. The Directors of the Spring Valley Water Company met and a full report of the negotiations between the two companies and the action of the Directors and Stockholders of the Spring Valley Water Works was submitted.

Resolutions were adopted reciting that “the deed of said Spring Valley Water Works to this corporation of all of its business, franchises and properties, as a whole, has been made, executed and delivered to this corporation”; which resolutions proceed to provide for the execution of promissory notes by the Spring Valley Water Company, to take the place of similar notes

theretofore outstanding by the Spring Valley Water Works.

The deed carrying out the terms of this transfer was executed by the Spring Valley Water Works and delivered to the Spring Valley Water Company on September 14th, 1903, and a copy thereof was introduced in evidence in this case as Complainant's Exhibit No. 103. The consideration expressed in this deed is the nominal sum of \$10.00, but the recitals show that the real consideration was the amount mentioned in the resolutions hereinabove set forth. The property covered by this deed included a large number of detailed pieces of property, and in addition the following general clauses are added for the purpose of including all the properties of the Spring Valley Water Works, to wit:

"And also all the waters, water rights of every kind and character, water privileges, easements, dams, reservoirs, pipes, flumes, aqueducts, distributing systems, mains, service pipes, plants, personal properties, franchises, claims, demands, moneys on hand and on deposit, suits or actions, at law or in equity, and cause or causes of action, at law or in equity, choses in action, contracts, agreements and covenants and all shares of capital stock in any and all corporations (in whosever name or names the same may be or stand) owned, held, claimed or acquired or hereafter to be acquired by the said Spring Valley Water Works, or used or employed or maintained in connection with its system of works.

"And also all properties, franchises and business, of every kind, name and nature, belonging to the party of the first part at this date or in which it may have any right, title or interest, whether the same is herein particularly described or not, or which it may hereafter acquire, or whether the same is held by third persons or other corporations in trust or otherwise for the party of the first part or not—subject to

the provision, and it is provided, that all such business, franchises and properties hereinbefore described, granted, assigned, conveyed or in any manner referred to, shall be and are subjected to and shall not be relieved from the liabilities of said Spring Valley Water Works and of said Spring Valley Water Company, contracted or incurred in the operation, use or enjoyment of such business, franchises and properties, or of the privileges of such business, franchises and properties, or any of either thereof; and also subject to all outstanding encumbrances secured by mortgage or deed of trust made by the party of the first part."

It will be noted from the above proceedings that the offer which was finally accepted was the one made under date of July 13th, 1903, to sell the entire properties, business and franchises of the Spring Valley Water Works, as a whole, for the sum of Twelve Million Six Hundred Thousand (\$12,600,000.00) Dollars, payable in five years without interest.

As this sum of \$12,600,000.00, provided for by the terms of the offer which was accepted, was not to be paid until five years after the date of the resolution and was to bear no interest during that time, the real consideration is the present value of \$12,600,000.00 discounted for a period of five years at four per cent simple interest (the same rate as the company was paying on its bonds). This amounts to \$10,500,000.00. (This discount at simple interest is liberal to the complainant. The usual method adopted for ascertaining present worth of a sum of money payable in the future is by discounting at compound interest. Upon that basis the present value would be \$10,356,281.00.)

As the above conveyance was made subject to all

outstanding indebtedness, the value of the property established thereby is obtained by adding to the present value of the selling price, \$10,500,000.00, the bonded indebtedness as of September, 1903, \$13,975,000.00 (see page 176 of this brief), and also the total floating indebtedness as of that date, amounting to approximately \$1,077,446.72; which establishes a total value of \$25,552,446.00. [Two figures for the amount of floating indebtedness are found in the record, viz: February 1, 1903, \$966,000.00 (Mr. Reynolds, p. 4820); and January 1, 1904, \$1,188,893.45 (balances of Dr. and Cr. Items on Mr. Wenzelburger's Exhibit No. 101, pp. 233-5; see p. 181 of this brief). As no exact figure is given for June or September, 1903, the average of the two above figures is used in the foregoing computations].

As this figure covers the entire properties, business and franchises of the Company, including those not in use, it is necessary to deduct therefrom the cost of the properties not in use, which is shown on page 110 of this brief to be \$4,645,444.09; leaving a net value as established by this sale of properties actually in use and useful of \$20,907,002.00.

With regard to the negotiations shown by the foregoing records and the transfer evidenced thereby, it is noticeable that three different offers were made to the Spring Valley Water Works by the Spring Valley Water Company: one of which was withdrawn and two alternate offers were submitted, from which the Spring

Valley Water Works accepted the one providing for a cash payment.

It is submitted that this transaction furnishes the best evidence of value which is contained in the record in this case. The transaction was evidently a bona fide sale from one company to another. The value was fixed, which in the judgment of the directors of both companies and the stockholders of the selling company represented the actual value of the properties.

It cannot be presumed that the holders of two-thirds of the stock of the Spring Valley Water Works would have consented to a sale upon a basis or for a price which did not represent the actual value of their properties. It cannot be said that it was a mere change of stock from one company to the other, as none of the stockholders of the first company were obliged to accept stock in the second company for their holdings. They had the legal right to insist upon their proportionate share of the selling price, which covered the equities in the properties. The consideration named cannot be considered as a nominal consideration, for the reason that it was changed three times before it was finally accepted.

The first offer of \$11,480,000.00 was \$82.00 per share for the whole 140,000 shares of outstanding stock of the Spring Valley Water Works; the second offer was \$82.00 per share for such portion of the outstanding stock as the Spring Valley Water Company did not itself acquire within five years; the third offer of \$12,600,000.00 was at the rate of \$90.00 per share for the whole 140,000 shares of outstanding stock. The in-

crease of the price offered from \$82.00 to \$90.00 per share is evidence that the directors of the Spring Valley Water Company feared that the first offer might not be accepted by the stockholders of the Spring Valley Water Works.

The purchase by one company from the other was evidently made by the directors of the second company and accepted by the stockholders of the first in good faith and for a consideration which was believed by all of them to represent the full value of the property at the time. A transfer of this character upon any other basis would have been subject to attack by any dissatisfied stockholder of the selling company. Under such circumstances it is submitted that the price thus fixed was established by the parties who were best informed as to the values of the properties at the very time here involved. The transaction was closed by the deed dated September 14, 1903, which is about five months after the first of these actions was commenced, and is within the fiscal year 1903-4 to which the valuations testified to in this case apply under the stipulation.

In the Jasper case (182 U. S., 439) the water company was in the hands of a receiver, who issued certain certificates. "Then by arrangement with the stockholders who were willing to go on, the mortgage was foreclosed and all the property was sold to those stockholders for the nominal sum of \$889,163.33, which was equal to the amount of outstanding certificates and bonds, and was paid by turning them in." It is with reference to this nominal sum that the Supreme Court says: "The officers of the two companies

“at the time thought that they got more than they
“could have got in any other way. But at all events,
“it is decided that price is evidence, we might say more
“important evidence than the original cost.”

A stronger case is presented by this sale, which involved no foreclosure by arrangement with certain stockholders. These two companies negotiated with each other, and, as a result of such negotiations, the price was raised to the full value of the total properties as determined by those best informed as to the facts. The present company paid for the entire properties in use on September 14, 1903, the sum of \$20,907,002.00. If the properties were worth millions of dollars more at that time, a tremendous fraud was perpetrated on the stockholders of the selling company. If they were worth but a small amount more, the difference in the fraud is in the degree and not in the principle. The fact is that no such fraud was committed; the full value of the properties was paid.

That value was \$25,552.446.00 for the entire properties, or \$20,907,002.00 for those then in use. Having itself fixed this value, the complainant cannot now be heard to say that it is not the correct amount.

We confidently assert, therefore, that the value of all the properties of complainant's properties in use and useful on September 14, 1903, is conclusively fixed by the price paid therefor as being \$20,907,002.00, and that such sum must be accepted as the value of such properties for all the purposes of these actions.

We submit that the Court should more readily accept this valuation placed by complainant itself upon

its properties, for the reason that there is no other evidence in this case from which this value can be determined with certainty.

II.

COST PRICE.

Second only in probative effect to the price as fixed by the above sale is the actual cost price of the properties in use at the time of their construction or acquisition. It is not claimed that original cost price is controlling in the matter of valuation for rate fixing purposes, but it is claimed that original cost is the best starting point from which to determine value. The total cost of complainant's properties in use as shown by its General Construction Account, as deduced by Mr. Wenzelburger, is \$22,279,689.23 (page 92 of this brief), or as shown by its Investment Account, is the sum of \$22,053,573.98 (page 172 of this brief). Some of the properties represented by these cost figures have appreciated in value since they were acquired by complainant company and others have depreciated. The true method of ascertaining their present value, in the absence of the price figure referred to in the foregoing paragraph, would be to add whatever appreciation is proved and to deduct whatever depreciation is shown. It is submitted, however, that the witnesses for the complainant have so carefully and assiduously avoided basing their estimates on actual cost figures, and have also avoided any attempt to estimate the increase or de-

crease in value therefrom, that there is nothing in this record upon which the amount of appreciation or depreciation to be applied to the original cost figures can be determined, and that the only certain proof of value on this basis is therefore such original cost figures without modification.

III.

COMPARATIVE VALUE OF EXPERT'S ESTIMATES.

If the Court should be of the opinion that neither of the above classes of evidence are a sufficient basis for a finding of the value of complainant's properties, it will then be compelled to accept "that most unsatisfactory evidence, the testimony of expert witnesses employed by the parties." (*Knoxville vs. Knoxville Water Co.*, 29 Sup. Ct. Rep., 154.)

In comparing the estimates of these experts, it is submitted that two considerations should control in determining the relative value of the different estimates, viz:

First. Which of the witnesses were most familiar with the properties involved.

Second. Which estimates are based upon the most rational theories of valuation.

It must be conceded that Mr. Schussler is undoubtedly much better acquainted with complainant's properties than any of the other witnesses in this case; having planned and constructed most of these properties himself, he had undoubtedly better sources of information in regard thereto than any other witness. His

estimates, however, as to total valuations are of no practical value, for the reason that they are based upon erroneous theories of comparative valuation, as pointed out in a preceding portion of this brief. His estimates of the structural values are also greatly exaggerated and altogether misleading as heretofore shown.

With the exception of Mr. Schussler, Messrs. Dockweiler and Grunsky show the most thorough acquaintance with and investigation of complainant's properties. Each of them had devoted long periods of time to the study of the complainant's properties in detail, and the estimates of each of these witnesses is based upon the correct theory of a detailed estimate of present value of each separate parcel of complainant's properties.

Messrs. Schuyler and Adams were undoubtedly well informed as to some of complainant's properties. The researches of each of these last witnesses were extensive and some of their valuations are entitled to weight. The total valuation of each of them is, however, based upon theories which it is submitted cannot be accepted by the Court.

The learned engineers who came from Eastern States for the purpose of testifying in this case were all of them men of high standing and occupied prominent positions in their profession. In the very nature of the case, however, their information with regard to the facts upon which valuations of these properties must be based was inferior to that of those engineers who lived in the neighborhood and had made a long study of conditions in this particular locality. It is submit-

ted, therefore, that of all the estimates of the expert witnesses, those of Messrs. Dockweiler and Grunsky are entitled to the greatest weight, as being based at the same time upon thorough and complete knowledge and proper theories of valuation.

For the above reasons, it is submitted that the preponderance of expert testimony does not prove a greater valuation than the figures of Mr. Dockweiler (\$24,053,390.00), or Mr. Grunsky (\$24,673,212.00).

SUMMARY OF VALUE OF COMPLAINANT'S PROPERTIES NOW IN USE AS SHOWN IN THIS BRIEF.

PRICE FIXED BY SALE.....\$20,907,002.00

COST PRICE:

CONSTRUCTION ACCOUNT\$22,279,689.23

INVESTMENT ACCOUNT\$22,053,573.98

EXPERT VALUATIONS OF PRESENT VALUE:

MR. DOCKWEILER\$24,053,390.00

MR. GRUNSKY\$24,673,212.00

RATE OF INCOME UNDER ORDINANCES.

Mr. Booker, chief clerk of complainant, testified that the gross amount of income which would have been received by complainant for the fiscal year 1903-04 (July 1, 1903, to June 30, 1904) under the ordinance of that year if the same had been enforced, was \$1,943,941.06 (p. 5834; Complainant's Brief, p. 116). From this amount complainant deducts operating expenses and taxes amounting to \$892,074.63, leaving a net income of \$1,051,866.43 (Complainant's Brief, p. 118).

For the fiscal year 1904-05, Mr. Booker testified that the gross amount of income which would have been received by complainant under the ordinance of that year, if the same had been enforced, was \$1,996,496.59 (p. 5834; Complainant's Brief, p. 116).

With regard to the fiscal year 1905-06, not quite six months had elapsed at the time Mr. Booker gave his testimony on December 29, 1905, but Mr. Booker estimated the amount of gross income which would be received, if the ordinance of February, 1905, were applied, at \$2,110,200 (p. 5835; Complainant's Brief, p. 116).

The amounts of gross income given by Mr. Booker for each year were derived from water rates alone (pp. 5833-5). Considerable income in addition to such water rates was received, however, by complainant from rents derived on those portions of its properties let to tenants, such as the office building, lands at Crystal Springs, Calaveras, Lake Merced, etc., and also

from rents or rates for water supplied to customers outside of San Francisco through the Suburban Company.

These rents and outside water rates are as much a part of the income of complainant on its properties as are the rates collected in San Francisco alone to which its figures apply.

To arrive at the net rate of income which would have been received by complainant for the above mentioned three fiscal years, had the respective ordinances been enforced, it will be necessary to add to the gross amount of income as given by Mr. Booker the rents received on properties in use and useful. From the total gross income thus obtained, deduction must be made of the proper amount of the operating expenses and the taxes paid, less such portion as was paid on properties not in use, and also less tax refunds.

We will now consider in detail the several items of revenue and expenditure above referred to.

RENTS.

Mr. Reynolds in Complainant's Exhibit No. 125 gave the following figures covering rents:

1903-04:

Rents from office building,

lands, etc\$53,100.54

Outside rents..... 44,866.81

Outside Water Rents..... 17,114.85

\$115,082.20

1904-05:

Rents from office building,	
lands, etc	\$54,031.87
Outside rents.....	3,009.46
Outside Water Rents.....	10,277.71
	<hr/>
	\$67,319.04

July 1, 1905, to Nov. 30, 1905:

Rents from office building,	
lands, etc	\$25,266.46
Outside Water Rents.....	7,599.77
	<hr/>
	\$32,866.23

Mr. Reynolds testified that the above totals included all rents received, whether for properties in use or out of use, and that the total average amount of rents received each calendar year was \$55,000.00. He said:

“Q. 633. These rents include the office building, do they?”

“A. These rents include everything, everything they received.

“MR. KELLOGG—Q. 634. On all the property of the corporation whether it is in use or out of use?”

“A. Yes, sir, everything they received. It averages about \$55,000 a year; but in 1904 there were outside rents that had been collected prior to 1904 but were taken on to the books of the Spring Valley at that time from the Suburban Company amounting to about \$47,000; so that the average rents run about \$55,000 a year, a calendar year” (p. 5811).

DISCREPANCIES IN MR. REYNOLDS' EXHIBIT NO. 125 ON
RENTS.

The outside rents and outside water rents mentioned in the preceding tabulation (pages 653-4) from Mr. Reynolds' exhibit represented the collections through the Suburban Company and totaled \$61,981.66 (\$44,-866.81 plus \$17,114.85) for the fiscal year 1903-04.

That Mr. Reynolds was in error in regard to the amount of the collection by the Suburban Company during 1903-04 is proved by figures furnished by Mr. Wenzelburger which we will now submit.

At pages 93 and 94 of this brief, it is shown that Mr. Wenzelburger was refused access to the books of the Suburban Company. In preceding portions of this brief we have emphasized the want of good faith evidenced by the withholding of cost data by complainant. Our remarks on that subject apply with equal force in this connection. Mr. Wenzelburger pointed out (pages 93 and 94 of this brief) that complainant paid the Suburban Company's bills and received its income; that the books of the Suburban Company dovetailed into the general books of complainant and were really a part and parcel thereof; that practically all the stock of the Suburban Company stood in the name of the President of complainant company; and that the directors of the Suburban Company were the trustees of complainant company.

The Suburban Company being therefore to all intents and purposes a subsidiary of complainant com-

pany, the refusal to allow Mr. Wenzelburger access to its books does not indicate frankness on the part of complainant. Mr. Schussler stated that he did not know the reason for such action on the part of the officials of complainant company (p. 2627).

Had Mr. Wenzelburger been allowed to take extracts from the Suburban Company's books, details would have been available in the record of the individual rents received and amounts collected for water supplied to customers outside of San Francisco (i. e., San Mateo, Belmont, Newark, Centerville, etc., pp. 2623-4), which would have enabled us to arrive much more readily at the amount of income derived by complainant from all sources.

Mr. Brooks supplied considerable information on rents received from portions of complainant's properties, and as his testimony indicates frankness and sincerity on his part, it could unquestionably have been verified from Mr. Wenzelburger's exhibits had that gentleman been given access to the Suburban Company's books. Wherever it has been found necessary to use Mr. Brooks' testimony in this brief, confirmation of his figures was always obtainable from other sources. In this particular case it is most unfortunate that Mr. Wenzelburger was prevented from obtaining the necessary data, as Mr. Reynolds' Exhibit No. 125 on the rents is altogether incomplete and unsatisfactory. In the majority of cases only the names of the tenants are mentioned, which leaves no possible means of comparison with the figures supplied by Mr. Brooks. Had

Mr. Reynolds inserted the location of the various properties, it would have enabled a comparison by totals in many cases. The discrepancies between the figures of Mr. Brooks and Mr. Reynolds will be dealt with later, our immediate task being to supply from Mr. Wenzelburger's exhibits data on the outside rents and outside water rents collected through the Suburban Company.

Mr. Wenzelburger's Exhibit No. 101 shows that the only data he was able to obtain on these collections was from an account in complainant's books entitled "Suburban Co. Contracts A/c" which appears in his Segregated Trial Balance of complainant's books at page 232 of Defendants' Exhibit No. 101. At pages 252 to 269 of said exhibit, Mr. Wenzelburger gave details of the receipts and payments through that account.

During the period covered by the fiscal year 1903-04 the outside rents and water rates collected by the Suburban Company are given as follows (page 261, Defendants' Exhibit No. 101):

1904—

March 31, Collection, viz: Water Rates.....	\$41,474.10
Rents	44,349.31
April 30, Water Rates.....	714.00
Rents	517.50
May 31, Water Rates collected in May.....	480.45
July, Water Rates, June.....	701.10
	<hr/>
	\$88,236.46

This figure is \$26,254.80 in excess of the amount given by Mr. Reynolds of \$61,981.66 as shown on page 655 of this brief.

Adding this amount of.....	\$ 26,254.80
To the rents as given by Mr. Reynolds (see	
page 653 of this brief.....	115,082.20

We have the total rents for the fiscal year

1903-04 as	\$141,337.00
------------------	--------------

It must be borne in mind that these figures given by Mr. Wenzelburger were taken from an account in complainant's own books, and are less than the total for the reason that all the credits were not passed through from the Suburban Company's books. A glance at the figures will show that the rents for May and June, 1904, were not credited, only receipts from water rates being mentioned.

Unfortunately Mr. Wenzelburger's Exhibit No. 101 does not extend beyond July, 1904, and therefore it is impossible to prove to what extent Mr. Reynolds' figures on outside rents and outside water rents for the fiscal year 1904-05 are in error. The inaccuracy in one year, however, sustains an inference of similar errors in the following years.

We are not concerned in this question of rate of income with the rents previous to 1903-04, but attention is nevertheless called to the fact that on pages 254 to 259 of Mr. Wenzelburger's Exhibit No. 101, details are given of various collections by the Suburban Company, of rent from 1900 to 1902.

Mr. Reynolds is quoted at page 654 of this brief as stating that the rents averaged about \$55,000.00 a year. The record, however, shows that the following rents were paid (with very slight variation in certain cases) regularly each year:

Office Building (p. 5852)	\$34,380.00
Industrial School Reservoir Tract (Mr. Brooks, p. 3366)	600.00
San Miguel Lots (Mr. Brooks, p. 3366)	360.00
Lake Merced (Complainant's Exhibit No. 122)	1,495.00
Polhemus Tract, Crystal Springs (Mr. Brooks, p. 3368)	1,600.00
Piece of land in San Mateo County (Mr. Brooks, p. 3368)	90.00
Calaveras reservoir lands (Mr. Brooks, p. 3372)	4,262.00
Vallejo Mills Lots (Mr. Brooks, p. 3378)	320.00
Piece of land in Alameda County (Mr. Brooks, p. 3368)	600.00
Santa Clara County lands (Mr. Brooks, p. 3367)	4,525.00
San Benito County lands (Mr. Brooks, p. 3367)	2,500.00
Konockti Ranch, Clear Lake (Mr. Brooks, pp. 3106, 3368)	275.00
	<hr/>
	\$51,007.00

In addition to this there are the outside rents and outside water rents collected by the Suburban Company, which, according to Mr. Wenzelburger's figures previously given, and Mr. Reynolds in Exhibit No. 125 in the columns covering the fiscal year 1904-05, the remaining portion of 1905, and the calendar year 1905, average \$1100.00 to \$1200.00 a month. Assuming it at \$1100.00 a month, we have for a year \$13,200.00, which added to the \$51,007.00 above given makes \$64,207.00. This amount, however (with two exceptions), only covers the larger rents and does not include the numerous small rents detailed in the names of tenants by Mr. Reynolds on Exhibit No. 125.

In view of the above showing we submit that Mr. Reynolds' statement as to the rents averaging \$55,000.00 a year is shown to be erroneous.

No complete figures can be obtained from the record of the amount of rents for the fiscal years 1905-06, Mr. Reynolds' Exhibit No. 125 only dealing with the period up to November 30, 1905. The office building was destroyed in the earthquake and conflagration of April 18-20, 1906; therefore two and one-half months' rent should be deducted in respect thereto. The rent of the office building is given on page 5852 of testimony at \$2865.00 per month, which for $2\frac{1}{2}$ months would equal \$7162.00. Mr. Reynolds fixed the rents for 1904-05 at \$67,319.04 (page 654 of this brief) and in view of all the circumstances we submit that \$60,000.00 would be a conservative figure for rents collected during the fiscal year 1905-06.

Mr. Brooks gave a list of the rents received from properties not in use, and if the figures in Mr. Reynolds' Exhibit No. 125 were substantiated by other data in the record, the proper procedure would be to deduct from the total amount thereof the rents on the properties not in use. We have shown, however, in the only case where direct comparison can be made, namely, on the collections by the Suburban Company of outside rents and outside water rents, that a considerable discrepancy exists between the figures as detailed by Mr. Wenzelburger from complainant's books and those given by Mr. Reynolds in his exhibit.

Grave doubt therefore arises as to the accuracy and completeness of Mr. Reynolds' exhibit, and this is increased by the fact that in several cases, where Mr. Brooks stated there was a lease for a certain term at a fixed annual rental, but does not specify the name of the tenant, no such amount can be traced on Mr. Reynolds' exhibit. On the contrary, there is only one case, with the exception of the office building, where the rent remained the same for the three years and the amount of this rent was insignificant, \$20.00. In a few cases the rent remained the same for two years, but these with two exceptions (\$175.00 and \$100.00) were under \$100.00. In any case the rents which remained at the same figure were insignificant in number and amount, and this disagrees with Mr. Brooks' testimony. Again the majority of the tenants, according to Mr. Reynolds, were very transient, the names constantly changing.

The following extract from Mr. Brooks' testimony shows that certain lands in Santa Clara County were let at \$3,500.00 per annum, from 1901 to 1906 (p. 3367) :

"The lands in Santa Clara County, which were deeded to the company July 31, 1901, and of which I am unable to give the acreage or the cost, are rented for \$17,500 for a term of five years, or \$3,500 per year, from November 1st, 1901, to November 1st, 1906, and the taxes."

The term of this tenancy begins before and ends after the period covered by Mr. Reynolds' Exhibit No. 125. Yet no rent is specified thereon approaching this amount of \$3,500 with the exception of W. Carson, who Mr. Brooks distinctly stated rented lands in the Calaveras reservoir site (p. 3375), which rent is separately named by Mr. Brooks at pages 3373-7 of his testimony.

Further testifying in connection with lands in Santa Clara County, Mr. Brooks said (p. 3367) :

"A piece bought in 1894 for \$18,500, and a piece bought in 1899 for \$2,000, together rented from 1900, October, to 1903, October, at \$600 per year, and from October, 1903, to October, 1906, at \$650 per year."

We fail to find any item corresponding even approximately to the above on Mr. Reynolds' Exhibit No. 125.

In connection with the Konockti Ranch at Clear Lake, Mr. Brooks testified (p. 3368) :

"The Lake County lands have been rented since 1896 for \$250 a year up to the last three years, when the rate was made \$275."

No such rent appears on Mr. Reynolds' Exhibit No. 125.

Further extracts from Mr. Brooks' testimony might be quoted proving rents received on permanent tenancies from lands at Crystal Springs, and in San Mateo, Alameda, Santa Clara and San Benito Counties (pp. 3366-3379), in none of which cases are the amounts to be found on Mr. Reynolds' Exhibit No. 125.

Sufficient evidence has been furnished, however, to justify our contention that Mr. Reynolds' Exhibit No. 125 did not contain a complete and accurate list of the rents on all properties of complainant let to tenants, and therefore it would not be proper to deduct therefrom the rents given by Mr. Brooks on properties not in use.

SUMMARY ON RENTS.

The figures given previously on rents for each of the fiscal years are as follows, and will be found inserted in our tables on rate of income at pages 696 to 698 of this brief:

1903-04	\$141,337.00
1904-05	67,319.04
1905-06	60,000.00

TAXES.

Mr. Reynolds gave the following as the payments for taxes for each of the fiscal years:

1903-04:

Gross Taxes (p. 5808) . . .	\$325,287.66	
Less Refund (p. 5809) . . .	941.91	
	<hr/>	\$324,345.75

1904-05:

Gross Taxes (p. 5808) . . .	\$353,172.91	
Less Refund (p. 5809) . . .	16,762.61	
	<hr/>	\$336,410.30

1905-06:

Gross Taxes (p. 5854) . . .	\$387,198.93
-----------------------------	--------------

The amounts given above represent all taxes paid, including those on properties not in use. These latter must be deducted in order to arrive at the figures to be used as a basis for determining the rate of income received by complainant on its properties in use and useful.

TAXES ON PROPERTIES NOT IN USE.

A large portion of Mr. Brooks' testimony was devoted to data on taxes, and therefrom we have obtained the following figures on taxes paid on properties not in use for the fiscal years 1903-04 and 1904-05:

Location of Property	1903-04	1904-05	Page
San Francisco City and County..	\$2,997.30	\$2,715.06	3065-81
Ocean View Pumps.....	167.25	154.80	3013, 3046-7
San Mateo County (Deduction by Mr. Brooks)	764.25		3041
Millbrae Reservoir	258.85	270.20	3082
Portola	2,342.20	2,410.50	3083-4
Pescadero	136.25	136.80	3084, 3094
Locks Creek	32.00	34.20	3085
Arroyo del Valle.....	418.60	418.60	3095-7
Santa Clara County.....	550.00	550.00	3339
Sausalito Lots	23.55		3102
Clear Lake	381.54	371.25	3106
	<u>\$8,071.79</u>	<u>\$7,061.41</u>	

In the cases of the Arroyo del Valle and Santa Clara County lands only one amount is given for taxes, and the year to which it applies is not specified. Accordingly we have used it in the table for both years.

We have endeavored to make the above table of taxes on properties not in use as complete as possible. It has been impossible, however, to identify certain properties, which we have shown at pages 105 to 110 of this brief to be not in use, for the reason that Mr. Brooks detailed the assessments and taxes from the vouchers.

In the majority of cases these gave no distinguishing name to the property, but merely mentioned it as being in a certain section, township and range. In many cases large tracts of land were assessed in one sum according to the original deeds of purchase (p. 3009), and consequently without regard to the divisions according to systems of complainant's properties. It has been impossible therefore to determine the apportionment of certain payments for taxes which related to the Polhemus tract at Crystal Springs, the 1500 acres at Locks Creek mentioned by Mr. Schussler as not in use (p. 1585), etc. Were it possible to determine the amount of the taxes on these specific properties, the figures given in the foregoing table would be very much larger. This particularly applies to the year 1904-05, as by reference to the table it will be noted that Mr. Brooks made certain deductions for San Mateo County for 1903-04.

Mr. Brooks' testimony was given from January to April, 1905, and therefore did not contain any details of taxes for 1905-06. At pages 5853-4 of complainant's testimony, however, a list of taxes paid in 1905-06 was submitted with the stipulation by Mr. Kellogg that Mr. Brooks would testify as therein stated. This list shows a total amount of taxes on properties not in use for that year of \$7,820.73, and this being the only figure given in the record we adopt same.

SUMMARY ON TAXES.

Deducting the amounts paid for taxes on properties not in use from the total amounts of taxes previously given, we have the following results for each of the fiscal years:

1903-04:

Net Taxes on all properties.....	\$324,345.75
Less Taxes on properties not in use....	8,071.79

Taxes on properties in use and useful,	
1903-04	<u>\$316,273.96</u>

1904-05:

Net Taxes on all properties.....	\$336,410.30
Less Taxes on properties not in use....	7,061.41

Taxes on properties in use and useful,	
1904-05	<u>\$329,348.89</u>

1905-06:

Taxes on all properties.....	\$387,198.93
Less Taxes on properties not in use....	7,820.73

\$379,378.20

OPERATING EXPENSES.

In Complainant's Exhibit No. 124 Mr. Reynolds gave the amount of the operating expenses for the fiscal years involved in these actions as follows:

1903-04	\$566,786.97
1904-05	543,672.42
1905-06	550,416.44

DEDUCTIONS OF EXPENSES ON PROPERTIES NOT IN USE AND ON WATER RATE LITIGATION.

Included in these amounts, however, are certain items detailed on said exhibit, which should not be considered in determining the amount of income to be charged against water consumers. These items cover expenses incurred upon properties which are not in use in furnishing water and legal expenses incurred in the present litigation.

The figures for 1903-04 are as follows:

Ocean View Pumps.....	\$ 943.98
Lobos Creek	2,038.17
Portola Reservoir (Searsville).....	882.15
Pescadero Expense	1,027.00

(The foregoing items are for properties not in use: see pages 105 and 109 of this brief.)

Water Rate Suit	13,100.05
	<hr/>
	\$17,991.35

This amount should properly be deducted from the total of the operating expenses and will be found to be so dealt with at page 691 of this brief. Similar deductions for 1904-05 and 1905-06 for amounts set out below will be found on pages 692-3 of this brief.

The items for 1904-05 are given on the same exhibit as follows:

Ocean View Pumps.....	\$ 1,556.12
Lobos Creek	1,513.50
Portola Reservoir (Searsville)	1,008.51
Pescadero Expense	948.00
Water Rate Suit.....	51,447.14
	<hr/>
	\$56,473.27

And for 1905-06 as follows:

Ocean View Pumps.....	\$ 900.00
Lobos Creek	1,402.63
Portola Reservoir (Searsville)	1,653.50
Pescadero Expense	948.00
Water Rate Suit.....	31,890.61
	<hr/>
	\$36,794.74

As to operating expenses for this last year (1905-06), the figures given by Mr. Reynolds are for actual expenses incurred for five months and are estimated for the remaining seven months. Regarding the latter estimates, Mr. Cyril Williams, Jr., Assistant Engineer of complainant, testified as to the details comprising the same. His cross-examination shows the nature of the

items which entered into Mr. Reynolds' computations. As the same items for expenses on properties not in use and for legal expenses, appear each year, his explanations of these items can be taken as applying to each year.

The items appearing in the following extracts from Mr. Williams' testimony are the proportions of those given above for 1905-06 as estimated by Mr. Reynolds for the remaining seven months of that fiscal year.

In connection with the Ocean View Pumps Mr. Williams testified (p. 5843) :

"XQ. 6. Are the Ocean View pumps running at the present time?

"A. No, sir. The operating expenses of the Ocean View pumps are the wages of the watchman, at \$75 a month.

"XQ. 7. Do you expect to use them during the next seven months?

"A. I do not think we will. I am sure we will not.

"MR. PARTRIDGE—I move to strike out and suppress that item 'Ocean View pumps: one watchman, \$75 a month, \$525,' upon the ground that it is an expense for property not in use."

At page 5841 of his testimony Mr. Williams stated that the estimated proportion of the expenses at Lobos Creek for seven months covered the wages of a watchman and rent at \$40.00 per month. His further testimony in this connection follows (pp. 5845-6) :

"XQ. 25. No water is derived for San Francisco from Lobos Creek, is there?

"A. No, sir.

"XQ. 26. That watchman is a man who is regularly maintained there?

"A. Yes, sir.

"XQ. 27. At \$75 a month?

"A. Yes, sir, \$75 a month.

"MR. PARTRIDGE—I move to strike out and suppress that item upon the ground that no water is derived from Lobos Creek.

"XQ. 28. What is that item of rent at \$40 a month?

"A. That is some land adjacent to property we own. We have a lease on that which expires on July 1st, 1906.

"XQ. 29. What did you use the property for?

"A. That I can not say.

"XQ. 30. Has it been used recently?

"A. The property has not been in use in supplying the city with water—none of the Lobos Creek properties.

"XQ. 31. Do you know when that lease was made?

"A. No, I do not.

"MR. PARTRIDGE—I move to strike out and suppress that item upon the same ground."

In regard to the estimated proportion of the expenses at Portola, Mr. Williams testified that this consisted of the wages of a watchman and building fences (p. 5840). He further said (p. 5844):

"XQ. 17. No water is brought into San Francisco from the Portola reservoir?

"A. No, sir.

"MR. PARTRIDGE—I move to strike out and suppress the testimony concerning the watchman's wages, \$525, and building fences, \$750, total \$1,275, upon the ground that no water is supplied from that reservoir."

Mr. Williams' testimony on the expense for Pescadero follows (p. 5847):

"XQ. 43. The Pescadero expense of the watchman, at \$75, is that the coast creek?

"A. Yes, sir, on the coast stream.

"XQ. 44. No water is derived from there?

"A. No, sir.

"MR. PARTRIDGE—I move to strike out and suppress that item on the ground that no water is derived from the Pescadero Creek."

The foregoing extracts from Mr. Williams' testimony serve to strengthen and confirm our right to deduct the properties in question as not in use at pages 105 and 109 of this brief.

The following is in connection with Mr. Reynolds' estimate of \$15,000.00 on Exhibit No. 124 as the expense for the remaining seven months of the fiscal year 1905-06 in connection with the water rate litigation (p. 5848) :

"MR. PARTRIDGE—I further move to strike out and suppress this item of \$15,000 for the water rate suit.

"XQ. 51. That simply means, Mr. Williams, the litigation in which we are now engaged, does it not?

"A. Yes, sir.

"MR. PARTRIDGE—My motion to strike that out is based upon the ground that it is not a proper charge."

It is submitted that the expenses incurred by complainant in seeking to prevent the enforcement of ordinances, which are presumed to be valid, cannot be charged against the ratepayers as operating expenses. If such practice is countenanced by the Court the enforcement of every ordinance fixing rates could be enjoined and costly litigation conducted each year by complainant all at the expense of the public. No warrant for such charges can be found either in law or reason.

We now quote Mr. Williams further as authority for the conclusion that the Crystal Springs Pumps were not being operated in 1905 and that there was some doubt as to whether the Pilarcitos and Millbrae Pumps were running that year. He said (pp. 5843-4):

"XQ. 9. Are the Pilarcitos pumps running now?

"A. I believe they are. I am not certain about that. We made that estimate because we believed we would have to pump. I wish to add that in the estimate for the operating expenses for the fiscal year 1905-06, I made an estimate which I called extra pumping, \$20,000; the actual expenses of the Pilarcitos and Millbrae pumps, during the year 1905, amounted to about \$18,500. In this estimate I have segregated it and made an estimate for the Pilarcitos pumps and for the Millbrae pumps separately.

"XQ. 10. How long is it since the Pilarcitos pumps have been running?

"A. I could get you the exact record of that if you wish it.

"XQ. 11. Approximately, if you remember it?

"A. I should say two or three or four months. That is only my recollection. I am not certain about it.

"XQ. 12. This \$8,100 is an estimate if the pumps are running the whole seven months, is it?

"A. Yes, sir.

"XQ. 13. They have not been running so far this month, have they?

"A. That I could not say without looking at the record.

"XQ. 14. Are the Crystal Springs pumps running now?

"A. No, sir.

"XQ. 15. Do you expect to use them during the next seven months?

"A. I can not answer that, but I do not think we will.

"MR. PARTRIDGE—I move to strike out and suppress the testimony concerning the cost of running the Pilarcitos pumps and the Crystal Springs pumps upon the ground that they are not in use.

"XQ. 16. How about the Millbrae pumps, are they in use at the present time?

"A. I do not know whether they are or not, running at present, but they have been for the last few months."

On the foregoing evidence of Mr. Williams, who as before stated, was Assistant Engineer of complainant company, we submit that it would be proper to deduct a large proportion of the operating expenses for these three pumping stations, which are given in Complainants' Exhibit No. 124 for the fiscal year 1905-06 as follows:

Pilarcitos Pumps:

First five months.....	\$ 3,504.58
Remaining seven months (estimated) ..	8,100.00

Crystal Springs Pumps:

First five months.....	\$12,884.57
Remaining seven months (estimated) ..	800.00

Millbrae Pumps:

First five months.....	\$ 2,195.66
Remaining seven months (estimated) ..	11,200.00

Mr. Williams' testimony being conclusive only as to Crystal Springs Pumps, we have limited our deduction from operating expenses in this regard to the \$800.00 estimated expense for the seven months of the fiscal year 1905-06 on Crystal Springs Pumps.

If, however, the exact facts were disclosed by the

record, it is probable that a large portion of the remaining \$37,884.81 covered by the above items should also be deducted.

The deduction of \$800.00 will be found to be used on page 693 of this brief.

DEDUCTION OF OUTLAYS FOR CONSTRUCTION IMPROPERLY CHARGED TO OPERATING EXPENSES.

Further extracts are now given from Mr. Williams' testimony illustrative of the practice of the company of charging to Operating Expenses items which should have been charged to New Construction, and justify the inference that similar charges were probably made during the other fiscal years.

The following items are shown by Mr. Williams' testimony (p. 5840) to be included in the expenses on the City Reservoirs:

Francisco Street Reservoir:

Roof	\$ 7,200.00
Brick Bottom.....	10,500.00
	<hr/>
	\$17,700.00

The cross-examination of Mr. Williams in connection therewith follows (pp. 5844-5) :

"XQ. 18. The item of city reservoirs: you mention a roof for the Francisco street reservoir, is that a new roof?

"A. That is a new roof, yes, sir.

"XQ. 19. The old one was worn out?

"A. The old one has been removed for several years; there has been a roof over that reservoir, and we have estimated on putting up a new one in the next six or seven months.

"MR. PARTRIDGE—I move to strike out and suppress that item—'Roof, Francisco Street reservoir, \$7,200,' upon the ground that it is new construction.

"XQ. 20. What about the brick bottom?

"A. The brick bottom we expect to lay at the same time that we put on the roof.

"XQ. 21. Is there a brick bottom there now?

"A. There is.

"XQ. 22. The idea is to take out the old bottom and put in a new one?

"A. I believe the idea is to put a new bottom over the present one.

"MR. PARTRIDGE—I move to strike out and suppress the item, '\$10,500, brick bottom, Francisco Street reservoir,' upon the ground that it is new construction."

These two items of expenditure on the Francisco Street Reservoir evidently belong to new construction, and we have accordingly deducted the sum of \$17,700.00 from operating expenses for the year 1905-06 at page 693 of this brief.

In his details of expenses for the seven months of 1905-06 on the Sunol Filter Beds Mr. Williams included one foot bridge at a cost of \$500.00, and gave a similar item under the expenses for Sunol Aqueduct (p. 5842). He further said (pp. 5847-8):

"XQ. 49. These foot-bridges at the filter-beds and the Sunol aqueduct, are those new bridges?

"A. One of them is a new bridge and the other is replacing one that is practically worthless. The new bridge which we are putting in is taking the place of another one

at a different location, so that we will cross the creek further up where it is narrower.

"XQ. 50. Which one is that?

"A. That is the one at the filter beds.

"MR. PARTRIDGE—I move to strike out and suppress that \$500 item for a foot-bridge at the filter-beds upon the ground that that is new construction."

The evidence of Mr. Williams showing that the bridge at the Sunol Filter Beds is chargeable against new construction, we have deducted the item therefor of \$500.00 from operating expenses for 1905-06 at page 693 of this brief.

In connection with the expenses on the Pilarcitos Pipe Line for the seven months of 1905-06 Mr. Williams testified that the following item was included, "New Pipe Daly's Hill, 1500 feet, \$3500.00" (p. 5841). It does not appear from the record whether or not this is an item of new construction and in the absence of such information we have made no deduction in respect thereto, although the nature of the charge would seem to warrant deduction thereof.

Mr. Williams' testimony covering a portion of the operating expenses for the fiscal year 1905-06 is the only information given by complainant of the details of the operating expenses for any one of the fiscal years involved in these actions.

Defendants submit that it having been possible, from the foregoing data for seven months of the fiscal year 1905-06, to deduct \$18,200.00 as previously shown (pages 675-7) for charges to operating expenses which properly belonged to new construction simi-

lar deductions could probably have been made from the operating expenses for the fiscal years 1903-04 and 1904-05 and the five months of 1905-06, had like data been available in respect to those periods.

DEDUCTIONS BY MR. WENZELBURGER FROM OPERATING EXPENSES.

Mr. Wenzelburger in Defendants' Exhibit No. 97 calls attention to several debits in Operating Expenses for the year 1903 which he considers should not have been charged against the water rates. Certain of these items come within the fiscal year 1903-04 and are subject to deduction from Operating Expenses for that year.

One item relates to an error made in the company's books in 1890, which was rectified through the Operating Expenses for 1903. Mr. Wenzelburger said (page 14, Defendants' Exhibit No. 97) :

"COAL ERROR.

"The Journal entry of September 30, 1903, explains this Error Charge, so-called, of \$10,730.00. It appears charged in four equal installments in September, October, November and December, 1903, viz :

Belmont Pump Account.....	4x\$2,000.00	=	\$8,000.00
Lake Merced Pump Account..	4x 364.	=	1,456.
Black Point Pump Account...	4x 318.50	=	1,274.
<hr/>			
TOTAL	\$2,682.50		\$10,730.

"All three are Operating Expense accounts.

"I quote from said Journal entry in reference to this charge:

"In January, 1890, by some error, our "Coal Account" was greatly overcharged, Belmont Pump being charged with 2,000 tons, whereas it has a capacity of only 1,200 tons, and this entry is now made to correct the account and Belmont Pump, City Engine and Lake Merced Pump are being charged (see Journal 5, p. 249) in four equal installments.'

"The original entry spoken of as being in Journal 5, page 239, is as follows:

January 10, 1890.

Coal Account.....	\$29,100.00
Dr. to Profit and Loss for Coal on hand	
January 1, 1890—	
Lake Merced Pump, 500 tons @ \$9.60	
(Charged to Profit and Loss).....	\$4,800
City Engine, 500 tons @ \$9.60	
(Charged Profit and Loss).....	4,800
Belmont Pump, 2,000 tons @ \$9.60	
(Charged Profit and Loss).....	19,500
	<hr/>
	\$29,100.00

"This charge of \$10,730 for an error thirteen (13) years old has no place at all in Operating Expense for 1903, and I eliminate it."

As stated by Mr. Wenzelburger an error thirteen years old was not a proper charge against Operating Expenses for 1903. The charge applies to the fiscal year 1903-04 and we have accordingly made the deduction of \$10,730.00 for that year at page 691 of this brief.

Mr. Wenzelburger in Exhibit No. 97, page 13, showed that certain charges were made against Operating Expenses for expenses on bonds which were not properly chargeable thereto. With regard to these charges he said:

“In my opinion, these charges have no place at all in the Operating Expense or Permanent Improvement Expense of the Company. They are in a class by themselves, and should not be made a charge on the City. A concern doing business with its own cash would have no such expense, and the City is dealing with the Company on the basis of a cash business, and not a credit one. The City has nothing to do with the credit of the Company, whether it be good or bad, when taking expense into consideration, in fixing rates. If the Company has a right to charge a discount of 5% and expenses on their bonds to the City, it has a right to charge 50% and greater expense, if financial conditions are such as to make it necessary in order to get money, or even more, and thus the proposition is reduced to an absurdity.”

Complainant's Exhibit No. 124 gives charges under Operating Expenses for “Bond Expense” in the amount of \$3,525.64 for 1903-04 and \$1.40 for 1904-05. These charges are of the same nature as those above objected to by Mr. Wenzelburger and are deducted by us from Operating Expenses at pages 691-2 of this brief, for the reasons given by Mr. Wenzelburger.

Other items of expenditure charged against Operating Expenses for 1903, to which Mr. Wenzelburger took exception, were the expenses of the incorporation of the Spring Valley Water Company amounting to \$2,846.90, and \$524.50 for proxies in connection with the reorganization. These expenditures are certainly

not legitimate charges against Operating Expenses and we deduct the two items at page 691 of this brief.

The Annual Report of the President, dated January 13, 1904, shows that the new company was in active operation from September 15, 1903 (Book "B," Minutes, page 10), and the above deductions therefore apply to the fiscal year 1903-04. Mr. Wenzelburger's remarks as to these items are as follows (Defendants' Exhibit No. 97, page 7) :

"PROXIES—1903.

"This expense of \$524.50 was incurred in the reorganization of the Company for Permanent Improvement and should be so charged, and not to Operating Expense, as is the case.

"SECRETARY OF STATE, INCORPORATION (1903).

"The same remarks apply to this amount of \$2,846.90 as to Proxies. It should be charged to Permanent Improvement, not to Operating Expense, as is the case."

Mr. Wenzelburger pointed out in Defendants' Exhibit No. 97 that in the "Service Connections" account, disbursements for the year 1903 were distributed in the proportion of thirty-eight (38) per cent to New Construction and sixty-two (62) per cent to Operating Expenses. The receipts on the other hand were apportioned in the ratio of eighty-five (85) per cent to New Construction and only fifteen (15) per cent to Operating Expenses. Mr. Wenzelburger is rightly of the opinion that the receipts and disbursements should be divided in the same proportions. He said (Defendants' Exhibit No. 97, page 6) :

"SERVICE CONNECTIONS.

"In 1903 I find <i>Charged</i> to Operating Expense for Service Connections, a net amount of	\$25,060.09
and <i>Credited</i> to Permanent Improvement for Service Connections a net amount of.....	7,959.92

Showing a Net Expense to the business for the year account of Service Connections to have been.....\$17,100.17

This is the Net excess of Disbursements over Receipts.

The Company has charged this amount in its books as follows:

"Disbursements.

To Permanent Improvement (for New Work, Labor and Material)	
38% of the total.....	\$18,533.18
To Operating Expense, the balance, or 62% of the total	29,732.53

TOTAL Disbursements for year	48,265.71
------------------------------------	-----------

"Receipts.

To Permanent Improvement (in monthly amounts by Journal Entry, giving no details)	
85% of the total.....	26,493.10
To Operating Expense 15% of the total.....	4,672.44

TOTAL Receipts for the year	31,165.54
-----------------------------------	-----------

NET as above.....

\$17,100.17

"The amount of \$4,672.44,. Credited to Operating Expense just above, is detailed in the books and is for connections made in the downtown district of the City, for the most part, and with large establishments which are deemed worthy of credit. When such work is done, Operating Expense (Main Repairs Account) is at once credited and the property holders charged through "Sundry Debtors' Account," collections being made later on.

"It will be noted from the above that of the *Charge* for Disbursements, 38% goes to Permanent Improvement, 62% to Operating Expense, while of the *Credit* for Receipts 85% goes to Permanent Improvement and but 15% to Operating Expense.

"In my opinion, the RECEIPTS should be apportioned at the same ratio as the DISBURSEMENTS. Doing so, we find Permanent Improvement should be credited with 38%..... \$11,842.91
Operating Expense should be credited with 62% 19,322.63

TOTAL..... \$31,165.54

"Operating Expense is credited on the Company's books with \$4,672.44 instead of \$19,322.63, as above, a difference of \$14,650.19, as against Permanent Improvement."

While Service Connections is unquestionably a regular item of expense each year, it does not appear separately in Complainant's Exhibit No. 124 on Operating Expenses, and there is nothing in the record by which the amount of the account could be determined for each year. We are compelled therefore to apply the figure of \$14,650.19 of actual excess charges as found by Mr. Wenzelburger for the calendar year 1903, for each of the fiscal years 1903-04, 1904-05 and 1905-06. Deduction will be found to have been made on this

basis in our summary on Operating Expenses at pages 691, 692 and 694 of this brief.

In his list of Operating Expenses for 1903 in Defendants' Exhibit No. 97 (page 26), Mr. Wenzelburger included the item, "American Bank Note Co., \$9,000." At the end of this list (page 28) he took out the item by a contra credit with the explanation that the amount was carried to 1904. Mr. Wenzelburger only dealt with the Operating Expenses for the calendar years 1901, 1902 and 1903, and therefore a charge in 1904 would not enter into his calculations as shown by the following (Defendants' Exhibit No. 97, page 16):

"American Bank Note Company. The charge of \$9,000.00 in 1903, Operating Expense, Bond Issue Account, is apparently cost of new bonds required because of the reorganization of the company that year. The amount is carried to 1904 expense, as will be seen by referring to the credits, and so does not affect figures previous to that time."

Had Mr. Wenzelburger reported on the year 1904 he would undoubtedly have eliminated this item. It not being a proper charge, we deduct the \$9,000 for the fiscal year 1903-04 in our summary on Operating Expenses as shown at page 691 of this brief.

Mr. Wenzelburger showed in Defendants' Exhibit No. 97 that certain receipts from the City and County of San Francisco for hydrants set were credited during each of the years 1901, 1902 and 1903 to New Construction. He pointed out that these were Operating

Expense credits and should be so treated. His figures for the three years are as follows:

1901.....	(p. 8)	\$3,542.50
1902.....	(p. 10)	3,842.15
1903.....	(p. 5)	6,077.00
Average for the three years.....		\$4,487.00

His remarks in connection with the item for the year 1903 follow (p. 5):

“Receipts from the City and County of San Francisco for Hydrants Set are credited to Permanent Improvement (New Construction Account), to the amount of \$6,077.00 in 1903. This is an Operating Expense credit and should be so treated.”

It being shown to have been the regular practice to credit these receipts to New Construction instead of to Operating Expenses, it is only fair to assume that this was continued through the three succeeding years. There being no figures in the record on these receipts from the City and County of San Francisco for the fiscal years 1903-04, 1904-05 and 1905-06, we have assumed the average of the amounts given above for the three preceding years, namely, \$4,487.00, to apply for deduction from Operating Expenses for the three fiscal years involved in these actions, as shown at pages 692 and 694 of this brief.

Mr. Wenzelburger called attention in the following to an item of expense in 1903 representing a trip by Mr. Schussler to Washington in regard to the hearing of the city's application for certain rights in Yosemite Valley (Defendants' Exhibit No. 97, page 12):

"H. SCHUSSLER, EXPENSE (1903).

"I understand this to be an expense of Mr. Schussler's trip East, in the matter of the hearing in Washington on the City's application for certain rights in Yosemite Valley. If so, the amount, \$1,372.50, should not be charged to Operating Expense at all, as is the case, and I eliminate it."

The record does not disclose the date of this payment. Being unable to determine therefore whether or not it applies in the fiscal year 1903-04, we have not made any deduction in this regard. We, however, call attention to it as being an example of the practice followed by complainant of padding the Operating Expenses with charges which did not properly belong thereto.

The foregoing remark applies also to another item objected to by Mr. Wenzelburger in Exhibit No. 97 at pages 12 and 13. It appears that in the year 1894 defalcations occurred in the office of complainant through an employee stealing paid bond coupons and realizing on same from time to time. Mr. Wenzelburger shows in the following that during 1903, \$510.00 worth of these coupons came in (Defendants' Exhibit No. 97, pages 12-13), and were charged against Operating Expenses:

"DEFALCATION—1894.

"In the year 1894 an employee appropriated funds to the amount of several thousand dollars. His method of operation was to steal paid coupons and realize on them. The exact amount of his defalcation will not be known until all

the coupons affected are in. They are still appearing, \$40.00 worth in 1901, nothing in 1902, \$510.00 worth in 1903. These amounts are charged to Operating Expense (General Expense Account) in the respective years. This is not a proper charge to Operating Expense, and I eliminate it."

From the record it is impossible to obtain the date of this item of \$510.00 for 1903. Being unable therefore to determine whether or not it applies in the fiscal year 1903-04, we have not made any deduction in regard thereto.

In Defendants' Exhibit No. 97, at page 3, Mr. Wenzelburger submitted Table "D," showing that the percentage of total expenditure for 1903, after exclusion of salaries, was sixty-six (66) per cent for New Construction as against thirty-four (34) per cent for Operating Expenses. On this showing he claimed that certain expenditures, which had been charged wholly to Operating Expenses, but related in part to New Construction, were properly chargeable in the proportion of the above percentages to the two divisions of expense. Certain of his remarks in connection therewith are submitted as follows (Defendants' Exhibit No. 97, pages 4-5):

"MEETINGS: DIRECTORS, TRUSTEES, EXECUTIVE COMMITTEE.

"Operating Expense bears this entire expense amounting in 1903 to \$4,390.00. This expense is made up of \$10.00 paid to every member of the Directors, Trustees or Executive Committee attending meetings thereof. Numbers of these meetings were devoted to Permanent Improvement matters, and particularly this year when the Company was reorganized

for the very purpose of Permanent Improvement. Applying the same proportion of 66 to 34, we have \$2,897.40 in Operating Expense, which should be in Permanent Improvement.

"RAILROAD TICKETS.

"The amount of \$1,264.70 is charged to Operating Expense in 1903, for this expense, and nothing to Permanent Improvement, although journeys were made on Permanent Improvement matters. Applying the same proportion as heretofore, 66 to 34, we have \$834.70 in Operating Expense which should be in Permanent Improvement.

"RECORDING, FILING, ABSTRACTS.

"Of this amount for 1903 (\$1,966.50), \$1,344.60 is for Bond Recording and is taken up below under the heading, 'Bond Expense.' The balance, \$621.90, is charged solely to Operating Expense and is made up of many items for Permanent Improvement Account, such as expense on lands, and in the reorganization of the Company for Permanent Improvement purposes. Probably it should all go to Permanent Improvement, but I apply the same proportion, 66 to 34, and find \$410.45 in Operating Expense which should be in Permanent Improvement.

"BOOKS, STATIONERY, PRINTING, MAPS.

"Operating Expense bears this entire expense amounting to \$6,459.18 in 1903. Applying the same proportion of 66 to 34, we have \$4,263.05 in Operating Expense which should be in Permanent Improvement."

Mr. Wenzelburger therefore made deductions from Operating Expenses for the calendar year 1903 as follows:

Meetings: Directors, Trustees, Executive

Committee	\$2,897.40
Railroad Tickets	834.70
Recording, Filing, Abstracts.....	410.45
Books, Stationery, Printing, Maps.....	4,263.05
	<hr/>
	\$8,405.60
	<hr/>

Undoubtedly the practice followed by complainant of charging the whole of these expenditures to Operating Expenses was continued through the three succeeding years. A certain proportion unquestionably belongs to New Construction, but there being no figures in the record as to the amount of the charges in this regard for the fiscal years 1903-04, 1904-05 and 1905-06, we adopt the figure of \$8,405.60 actually shown by Mr. Wenzelburger to have been erroneously charged in the calendar year 1903, and apply that amount for each fiscal year involved in these actions. Deduction on this basis will be found to be made in our summary on Operating Expenses at pages 692-4 of this brief.

LEGAL EXPENSES.

The legal expenses for the three fiscal years involved in these actions are given by Mr. Reynolds in Complainant's Exhibit No. 124 as follows:

1903-04	\$31,565.58
1904-05	11,278.00
1905-06	11,486.10

It will be noted that the expenses for 1903-04 were nearly three times the amount of those for either of the other years. No explanation is offered for this very high expenditure in 1903-04, but it appears from Book "B" of the Minutes, page 7, under date of December 31, 1903, that \$10,000.00 of this amount was incurred in connection with the examination by attorneys for purchasers of the legality of the new bond issue. Such expense is not properly chargeable as a portion of the annual Operating Expenses. We therefore deduct the amount of \$10,000.00 for the fiscal year 1903-04 in our summary on Operating Expenses at page 692 of this brief.

Even after this deduction the amount charged to legal expenses for 1903-04 is nearly twice the amount charged to the same account for the two following fiscal years. This excess is probably due to the formation of the new corporation and the issuance of new bonds during that year; although the record does not disclose that fact.

SUMMARIES OF CORRECTED OPERATING EXPENSES.

Deducting from Mr. Reynolds' figures for Operating Expenses the several amounts covered by the foregoing discussion we obtain the following results for the respective fiscal years:

1903-04.

Gross Operating Expenses as given by Mr.

Reynolds in Complainant's Exhibit No.

124 (page 668 of this brief) \$566,786.97

Less Deductions made in previous pages of this brief (number of page given below for each item):

On Properties not in use

(page 668) \$ 4,891.30

Water Rate Suit (page 668) 13,100.05

Through Mr. Wenzelburger:

Coal Error (page 679) . . . 10,730.00

Bond Expense (page 680) . . 3,525.64

Secretary of State, Incorporation

(pages 680-1) . . . 2,846.90

Proxies on Reorganization

pages 680-1) 524.50

Service Connections (page

683) 14,650.19

American Bank Note Co.

(page 684) 9,000.00

Forward, \$59,268.58 \$566,786.97

Forward, \$59,268.58	\$566,786.97
Hydrants set (page 685) . . .	4,487.00
Meetings, railroad tickets, recording, filing, abstracts, books, stationery, printing, maps (page 689)	8,405.60
Legal Expenses (page 690)	10,000.00
	<hr/>
	\$ 82,161.18
Net Operating Expenses for the fiscal year 1903-04	\$484,625.79

1904-05.

Gross Operating Expenses as given by Mr.
Reynolds in Complainant's Exhibit No.

124 (page 668 of this brief) \$543,672.42

Less Deductions made in pre-
vious pages of this brief (num-
ber of page given below for
each item) :

On Properties not in use

(page 669) \$ 5,026.13

Water Rate Suit (page 669) 51,447.14

Through Mr. Wenzelburger:

Bond Expense (page 680) 1.40

Service Connections (page
683) 14,650.19

Hydrants Set (page 685) 4,487.00

Forward, \$75,611.86 \$543,672.42

Forward,	\$75,611.86	\$543,672.42
Meetings, railroad tickets, recording, filing, abstracts, books, stationery, printing, maps (page 689)	8,405.60	
		<u>\$84,017.46</u>

Net Operating Expenses for the fiscal
year 1904-05 \$459,654.96

1905-06.

Gross Operating Expenses as given by Mr.
Reynolds in Complainant's Exhibit No.
124 (page 668 of this brief) \$550,416.44
Less Deductions made in pre-
vious pages of this brief (num-
ber of page given below for
each item):

On Properties not in use
(page 669) \$ 4,904.13
Water Rate Suit (page 669) 31,890.61
Through Mr. Williams:
Crystal Springs Pumps
(page 674) 800.00
Roof and brick bottom at
Francisco Street Reservoir
(page 676) 17,700.00
Bridge at Sunol Filter Beds
(page 677) 500.00

Forward, \$55,794.74 \$550,416.44

Forward,	\$55,794.74	\$550,416.44
Through Mr. Wenzelburger:		
Service connections (page		
683)	14,650.19	
Hydrants Set (page 685) ..	4,487.00	
Meetings, railroad tickets,		
recording, filing, abstracts,		
books, stationery, printing,		
maps (page 689)	8,405.60	
		<hr/>
		\$83,337.53
Net Operating Expenses for the fiscal		
year 1905-06	\$467,078.91	

With regard to the deductions made in the foregoing tabulations from the amount of Operating Expenses given for each year by Mr. Reynolds, it is to be noted that the only checks upon his figures contained in the record are the report of Mr. Wenzelburger covering one-half of the fiscal year 1903-04 and the testimony of Mr. Williams, covering the last seven months of the fiscal year 1905-06. From these figures covering only a part of the first and last fiscal years we have been able to prove the propriety of the deductions heretofore made. It is safe to assume, however, that if similar testimony was contained in the record covering the last half of the first fiscal year, the whole of the second, and the first five months of the third, much larger deductions could have been made from the amount of Operating Expenses as reported by the complainant. The figures which we have presented are all based upon actual testimony (with the exception of certain

necessary assumptions on three of the items for 1904-05 and 1905-06), and the lack of data for the remaining years is referred to only for the purpose of showing the conservative character of the above computations.

It is also noticeable that the deductions shown by Mr. Williams' testimony to be proper from Operating Expenses for the last fiscal year were in some cases for New Construction that occurred during the last seven months of that year, which is the latest period involved in these actions. It must be assumed therefore that the practice of making such charges had been continuous during previous years.

CORRECT NET RATE OF INCOME.

Making allowance for all of the items covered in the preceding discussion the correct amount of net income which would have been received by complainant under the Ordinances for the several years, if the same had been enforced, is as follows:

FISCAL YEAR 1903-04.

Income from Water Rates according to Mr. Booker (page 652 of this brief) ..	\$1,943,941.06
Additional Income from Rents (page 663 of this brief)	141,337.00
Total Income	<u>\$2,085,278.06</u>

Less:

Taxes (page 667 of this brief)	\$316,273.96
Net Operating Expenses (page 692 of this brief)	<u>484,625.79</u>
	800,899.75
Net Income for Fiscal Year 1903-04..	<u>\$1,284,378.31</u>

THE ABOVE AMOUNT IS FIVE AND THIRTY-TWO ONE-HUNDREDTHS ($5\text{-}32/100$) PER CENT UPON \$24,124,389; THE VALUE OF COMPLAINANT'S PROPERTIES AS FIXED BY THE BOARD OF SUPERVISORS FOR THE FISCAL YEAR 1903-04.

IT IS SIX AND FOURTEEN ONE HUNDREDTHS ($6\text{-}14/100$) PER CENT UPON THE SUM OF \$20,907,002; WHICH IS THE VALUE OF COMPLAINANT'S PROPERTIES IN ACTUAL USE AS FIXED BY THE PRICE FOR WHICH THESE PROPERTIES WERE SOLD IN SEPTEMBER, 1903, AS SHOWN ON PAGE 644 OF THIS BRIEF.

FISCAL YEAR, 1904-05.

Under the Ordinance of 1904-05, if the same had been enforced, the amount received upon the method of computation used above for the previous year, would have been as follows:

Income from Water Rates according to

Mr. Booker (page 652 of this brief) . . \$1,996,496.59
Additional Income from Rents as per Mr.

Reynolds (page 663 of this brief) 67,319.04

Total Income \$2,063,815.63

Less:

Taxes (page 667 of this
brief) \$329,348.89

Net Operating Expenses

(page 693 of this brief) . 459,654.96

789,003.85

Net Income for Fiscal Year 1904-05 . . \$1,274,811.78

THE ABOVE AMOUNT IS FIVE AND SIXTEEN ONE HUNDREDTHS ($5\text{-}16/100$) PER CENT UPON \$24,673,212, THE VALUE OF COMPLAINANT'S PROPERTIES AS FIXED BY THE BOARD OF SUPERVISORS FOR THE FISCAL YEAR 1904-05.

IT IS SIX AND NINE ONE HUNDREDTHS ($6\text{-}09/100$) PER CENT UPON THE SUM OF \$20,907,002; WHICH IS THE VALUE OF COMPLAINANT'S PROPERTIES IN ACTUAL USE AS FIXED BY THE PRICE FOR WHICH THESE PROPERTIES WERE SOLD IN SEPTEMBER, 1903, AS SHOWN ON PAGE 644 OF THIS BRIEF.

FISCAL YEAR, 1905-06.

Under the Ordinance of 1905-6, if the same had been enforced, the amount received upon the method of computation used above for the previous years, would have been as follows:

Income from Water Rates according to	
Mr. Booker (page 652 of this brief) ..	\$2,110,200.00
Additional Income from Rents (page 663	
of this brief)	60,000.00
	<hr/>
Total Income	\$2,170,200.00

Less:

Taxes (page 667 of this	
brief)	\$379,378.20
Net Operating Expenses	
(page 694 of this brief) ..	467,078.91
	<hr/>
	846,457.11
	<hr/>
Net Income for 1905-06	\$1,323,742.89

THE ABOVE AMOUNT IS FIVE AND TWENTY-NINE ONE HUNDREDTHS ($5\text{-}29/100$) PER CENT UPON \$25,001,441, THE VALUE OF COMPLAINANT'S PROPERTIES AS FIXED BY THE BOARD OF SUPERVISORS FOR THE FISCAL YEAR 1905-06.

IT IS SIX AND THIRTY-THREE ONE HUNDREDTHS ($6\text{-}33/100$) PER CENT UPON THE SUM OF \$20,907,002; WHICH IS THE VALUE OF COMPLAINANT'S PROPERTIES IN ACTUAL USE AS FIXED BY THE PRICE FOR WHICH THESE PROPERTIES WERE SOLD IN SEPTEMBER, 1903, AS SHOWN ON PAGE 644 OF THIS BRIEF.

CONCLUSION AS TO RATE OF INCOME.

We have shown above that the three ordinances which are attacked in these cases would have yielded to complainant more than five per cent net, after all legitimate and proper charges are deducted, upon the several amounts adopted by the Board of Supervisors for the respective years as the value of complainant's properties then actually in use in supplying water to the City and its inhabitants. We have further shown in other portions of this brief that the amounts so adopted were liberal allowances for the fair value of the properties then in use. We have also shown that the income which would have been produced under said ordinances would have been more than six per cent net upon the value of the properties as established by complainant itself in its purchase of 1903.

Proof of these facts negatives all charges of confiscation of complainant's income. As stated by Judge Farrington in the 1908 case: "An income of five per cent
"net, after all taxes, operating expenses, and other
"legitimate and proper charges are deducted from the
"gross income, is neither unreasonable nor confiscatory" (165 Fed., 685).

DEPRECIATION.

Complainant claims that it is entitled to an extra allowance in the rates for depreciation of its plant; that the Board of Supervisors failed to make any such allowance, and that, therefore, the ordinance rate is confiscatory.

Several answers suggest themselves to this contention, viz:

First: The constant replacement of the plant from the maintenance fund has reduced depreciation to a minimum.

Second: In estimating the value of complainant's properties no deduction has been made for its depreciation.

Third: Depreciation is offset by alleged excellence of the complainant's system. Increase in the price of cast iron pipe more than makes up for any depreciation in that item.

Fourth: Only a small part of the complainant's plant is subject to depreciation.

Fifth: The amount of depreciation is not proved.

First:

The testimony of its chief engineer and other witnesses produced by complainant proves that it has been the uniform practice of the com-

plainant company to renew the perishable portions of the plant as needed, in order to keep the system up to a high state of efficiency; and that the cost of such renewals has been charged to the maintenance account or operating expenses, and has been repaid to the company in the annual rates. These operating expenses seem to have been allowed as claimed with little, if any, dispute. Thus the company has received each year not only the interest upon its investment but a portion of the replaced principal as well. Upon the expiration of the assumed life of the perishable portions of the plant, the city will not be in the position of asking the company to renew its plant without payment therefor other than interest, for the reason that the plant, having been renewed from time to time at the expense of the rate payers, does not go out of use at a definite time, as assumed. The custom adopted in the past can be presumed to continue in the future. That custom has provided the company with the cost of replacements whenever they have been considered necessary. If, then, portions of the plant are replaced as necessary, a further allowance for final replacement would manifestly constitute a double payment. Adopting the illustration suggested in Judge Farrington's decision, the city has paid and will continue to pay, each year, not only the interest on the investment but a portion of the principal.

Mr. Reynolds, the complainant's financial expert, said:

"I will say this: the corporation has always received enough money each year from water rates to pay all the so-

called operating expenses, including interest, taxes and dividends, such as it did pay, if in my judgment the outlays had been properly distributed" (p. 5827).

The method of charging the cost of replacements is illustrated by the following quotations from Mr. Schussler's testimony:

"XQ. 2760. Whenever there is an injury to the pipe or the flume or any portion of the work where a portion had to be taken out and replaced, is that always charged to the maintenance fund?

"A. That is the way I understand it. I think it properly belongs there.

"MR. KELLOGG—I would like to understand what you mean by 'maintenance fund,' Mr. Partridge?

"MR. PARTRIDGE—I mean that portion which is charged up to operating expense.

"THE WITNESS—Yes, operating expense; practically all the repairs belong to operating expenses. That can not be charged to new construction twice because it has been charged once before in the original construction" (p. 2173).

And again Mr. Schussler said:

"A. As I understand it, yes; whatever we rebuild we charge to operating expense; also what we repair." (p. 2175).

In the water rate investigation before the Board of Supervisors for the year 1900-01, Mr. Schussler made several statements showing the custom of the company of charging the replacement of all worn out portions of the plant to maintenance or operating expense. It is further shown from these statements that, in the event of the replacement of a smaller pipe or other

structure by a larger or better one, such proportion of the cost as would represent the replacement of the original structure was charged to maintenance or operating expense, and only the excess of the cost of the larger pipe or structure over what a new one of the original size would have cost was charged to new construction. This system has kept the plant up to a state of constant efficiency equal to that of its original condition; and the expense of all this work has been met out of the current rates. Hence there has been but slight depreciation. The statements by Mr. Schussler referred to are as follows:

"We certainly charge the repairs of broken pipes, if a pipe breaks in the street and it tends to do damage by flooding basements and the neighborhood generally, we cut out the broken piece, splice in a new piece and thoroughly repair that and charge it to operating expenses—to repair account" (p. 2631).

And:

". . . Supposing that a 4-inch pipe has been laid in the streets at a certain cost; now, the district beyond, or even the district in which this pipe is laid grows and needs more water; it is therefore determined to replace the 4-inch pipe by an 8-inch pipe; the 8-inch pipe costs more money than the 4-inch pipe has cost; and what Mr. Ames means to illustrate is that such excess of cost, what the 8-inch pipe would cost more than the 4-inch is charged to new construction and what it would have cost to replace the 4-inch is charged to maintenance—repair account—is that plain enough?

"Q. Do I understand the 4-inch pipe is abandoned?

"A. No, sir, if the 4-inch pipe is taken out of the ground and an 8-inch pipe is put in the place of it, then we are

ordered by our lawyers to charge the excess of cost that the 8-inch is above the 4-inch to betterment or new construction and only such portion of it as it would have cost to replace and renew the 4-inch pipe would be chargeable to maintenance or repair account. It is very hard to come very accurately to that, but we try to come as near as possible" (pp. 2629-30).

And again:

"Q. In what account is your maintenance account placed? Is that in your operating expenses?

"A. Operating expenses, yes, sir.

"MAYOR PHELAN—That pipe is abandoned for all time, is it not?

"A. The pipe that is given up and left under the street is lost because it does not pay to take it up. It would not be good business policy to spend \$500 to save \$200 of pipe, but when it shows a small margin in favor of taking it up then we take it up; but if it costs for labor and for replacing the bituminous pavement, which is very expensive, more money than it is worth, then we let it go.

"Q. Suppose you do take it up, do you charge that as a running expense, or how do you classify that expense?

"A. If we do take it up, the cost of taking it up and hauling it to the pipe yard and cleaning it is all put into maintenance—operating expenses" (pp. 2630-31).

And further:

"We have one case of the San Andreas pipe line which had to be replaced. It was originally a 30-inch pipe, I think 16 miles long, and that 30-inch pipe, about five miles of it gave evidence of getting worn out. If we had replaced that five miles by another five miles of 30-inch pipe, then I think, properly speaking, that should have gone into maintenance or operating expenses, but as we changed that pipe line to a larger pipe, increasing the pipe line from a 30-inch of very light iron to a 44-inch of one-quarter inch boiler iron and changed its original purpose entirely, bringing it

down to the Millbrae pumps and then connecting it with the remaining 10 or 11 miles of the 30-inch pipe, which is still in use, a portion of that cost should go to new construction and a portion to maintenance" (pp. 2631-32).

In the investigation of 1895, in discussing the amount charged to maintenance during the preceding year, Mr. Schussler testified:

"Bald Hill, \$12,000; that was last year, \$5,550.21. That includes two extensive repairs that we have had to make, one at Baden and one through the Sneath farm. It is repairing and relaying the pipe, and we are not allowed to charge that to new construction" (p. 2805).

Mr. Fitzgerald, one of defendants' witnesses, made no allowance for depreciation for the reason that he found that replacements had been charged to operating expenses. He based his conclusions upon testimony given before the Board of Supervisors in 1900 by Mr. George Schussler, assistant engineer of the complainant, which was as follows:

"Q. Can you give us an explanation of your system of charging in your books for repairs and for construction? I believe maintenance is similar to repairs, is it not?

"A. Yes, sir.

"Q. Suppose you had this 30-inch pipe down, and there is a half a mile of it which absolutely gave out for some reason or other, and you put down another 30-inch pipe just exactly the same, would that be maintenance or construction?

"A. It would be certainly maintenance, nothing but repair, and pieces of pipe have to my certain knowledge been replaced several times. I think Mr. Lawrence can tell you about that.

"Q. I am on the bookkeeping point.

"A. Yes, that is charged to maintenance.

"Q. Suppose that any given portion of your system does not require enlargement, every time a portion of it wears out and it is replaced, all that is charged to maintenance, is not that so?

"A. Yes, anything that is repair is maintenance.

"Q. If this fact occurred: that the San Andreas system were large enough for the capacity of the reservoir, and never would need enlargement, and would simply wear out and be replaced always with the same capacity the cost of replacement would come out of the rates and never out of bonds or stock?

"A. Yes, sir.

"Q. Then when the whole works had been replaced, still without any increase in its size or change in the engineering, but simply replacement, the whole cost of replacement would come out of the rates and not out of the stocks or bonds, according to your system of bookkeeping?

"A. Yes" (pp. 486-7).

Mr. Schuyler testified as follows:

"XQ. 58. I will ask you again, Mr. Schuyler, if in arriving at the value of the corporation's properties at the present time you made any deduction for depreciation?

"A. No, sir.

"XQ. 59. Do you think it is a fair or reasonable thing to estimate depreciation in the cases we have just cited when it is in favor of the company and to refuse to deduct it when it is against them?

"A. I do not think I understand in what way it would be against them or could be against them.

"XQ. 60. As I understand you, you say that in arriving at the value of the element 'going business,' you should determine the amount that the company would be entitled to each year for the element depreciation, which you estimate as being 1% on the capital invested. If you estimate that in arriving at the value of an element which you add to the value of the corporation's property why should you not,

when you come to estimating their present value, also deduct depreciation?

"A. Because that is as much an element to be added to their income as interest or operating expenses. It is a constant thing which must be provided for in order to maintain the efficiency of the plant.

"XQ. 61. Probably that is very true, but that was not the question I asked. What I asked is why should that be considered in one case where it would add to the value of the company's property and should not be considered in the case where it deducts from that value?

"A. It should always be considered because it is always present and always to be met.

"XQ. 62. In making your estimate of the value of the properties finally, did you make any deduction for depreciation?

"A. No, I did not, because I have assumed that the works are as I observed them to be, maintained in a constant state of efficiency for service, and, therefore, there is no depreciation to the service of the plant.

"XQ. 63. Then why should you take into consideration the element 1% for depreciation in getting at the element of going value, if there is no depreciation?

"A. I have not taken that into consideration.

"XQ. 64. You did not take it into consideration?

"A. No.

"XQ. 65. I understood you to say that that would have to be taken into consideration in determining the losses of the corporation, and therefore the element 'going business'?

"A. I meant to say, and I think I did say, that a certain amount should be always set aside for the depreciation account for maintaining the works in serviceability, and that the company is as much entitled to that as to interest upon its bonds and its operating expenses of the ordinary character.

"XQ. 66. What I am trying to get at, Mr. Schuyler, is, if that is so, you get at a definite amount or a definite portion of the element 'going business' by taking into consideration depreciation; why should you not deduct deprecia-

tion when you come to make an estimate of the value of the actual properties?

"A. Because depreciation having supposedly been provided for in the revenue no actual depreciation exists; the serviceability of the plant having been maintained, no actual depreciation could be deducted.

"XQ. 67. According to your view the corporation should be allowed to set aside a certain sum for depreciation which would become a part of its assets, but the value of its property should be considered as if there were no depreciation; is that your idea?

"A. Yes, sir. The works are devoted to a public service and they can not be sold or realized upon in any other way and the company is bound to maintain the works in serviceable condition, and therefore the element of depreciation can not reasonably be considered as against the value of the property because they are entitled to have that property maintained without such depreciation being manifest or being considered" (pp. 5474-6).

In connection with the above testimony of Mr. Schuyler, it is to be noted that there is no evidence in this case tending to prove any lack of income for the maintenance of the plant in a high state of efficiency. On the contrary, the evidence all tends to prove that the efficiency and serviceability of the plant has been continuously maintained.

Mr. Adams discussed depreciation thus:

"In any event, depreciation represents a shrinkage or diminution of tangible property value, which must be written off to expense as a part of the cost of maintaining the service, and which must be paid for out of the revenues if the capital so invested is to be preserved unimpaired. There are two ways in which this may be done; first, by the establishment of a fund out of which all renewals and losses from abandonment are made good; the said fund being maintained by uniform periodical contributions from the revenues;

or, second, by meeting the actual expense of renewals and abandonments each year out of the revenues of the same or succeeding year. Either policy preserves intact the invested capital, and charges depreciation where it belongs, as an item of expense" (p. 4744).

And:

"XQ. 166. Suppose it is true that wherever perishable parts of water works have become useless they have been replaced and the cost of the replacement charged to operating expenses; in other words, paid out of the income from the rates, at the same time the stock paying a dividend and all other expenses being paid, would you say that that would alter the problem at all?

"A. Yes, it may materially alter the situation. If the revenues have been made adequate to pay proper returns upon the value of the property, in addition, of course, to all the various items of expense in the conduct of the plant, and in addition, admit of the renewal of structures which have perished, it is evident that, under those circumstances, there is no occasion for considering the matter of depreciation at all. The structures which are gone have been paid for as they should be paid for, out of the revenues of the company, that is, out of the earnings of the company, and the new structure having taken its place and been paid for in that way is not charged up to new construction at all, but renewal has gone to expense, where it belongs, leaving the plant substantially where it was. So that if the account is properly kept there is no reason even then why depreciation should figure at all in the determination of value" (pp. 4908-9).

Mr. Dockweiler, one of defendants' witnesses, based his opinion that the company should not be allowed for depreciation upon the fact that it received as maintenance charges a sufficient sum to cover all expense of repairs and replacements. This witness shows the consistency of the system which has always prevailed

of paying for replacements, *when made*, out of the rates, by a discussion of the impossibility of determining with any degree of accuracy the life of any portion of the plant; and hence the uncertainties of any scheme of annual allowances for such replacements. He also clearly shows the danger of double payments for replacements in the method contended for by complainants. Mr. Dockweiler testified:

“Q. 156. In your opinion should anything be allowed the water company for depreciation or deterioration.

“A. No, I think not. The company always receives from the rates sufficient money as an allowance for maintenance to cover its repairs, and has received sums with which it has replaced wornout structures.

“Q. 157. Will you give your reasons?

“A. Ordinarily viewed, it would appear that an annual allowance should be made for a sinking fund to replace the perishable parts. Against this procedure is to be argued the following:

“Case A: A period must be assumed at the end of which time the property will have ceased to exist. But if at the end of that period the property is still in existence, and is used and capable of serving for many years yet, you have allowed the company the money which it cost. How will you fix rates then? The company has received a sum which can duplicate the structure. The company still owns it. Are you going to allow full value, or any value for it? For all you know the company may take the sum you have allowed it and place it where it will earn interest, or invest it otherwise, whilst the structure which it thought would be gone is still in existence and rendering service and capable of rendering it for many years to come. Would the city own it? Certainly not—and yet the city paid for it. The service is still the same.

“Case B: Suppose that you assumed a period and fixed your annual contribution accordingly, and you found that

before half the time had expired, the property went to pieces ; you have manifestly accumulated less than one-half the sum necessary to replace it as per your calculation.

"It may be possible that prices have so fallen that this one-half sum may now duplicate the structure—this, however, does not affect the theory—on the other hand prices may have risen to double the original cost, in which case you would have only one-quarter of the money necessary to duplicate the structure.

"Referring to Case A: If the water company would receive no income upon the structure after it had accumulated a sinking fund at the end of the period of expected life of the structure, might it not then, although not required, replace it with a new structure, so as to have its money earning again, in which case the city would be paying interest upon an unnecessary new structure?

"Deterioration is one of the laws of nature. Under certain conditions the life of a structure may be thirty years. By taking care of it, such as would be the case of a pump, its parts would last 30 years. This is considered its ordinary physical life. Now, by substituting for the different parts, as they become worn out, new ones, by the end of a certain time, you will have a pump not a single part of which comprised the original pump.

"Now, by the former method, at the end of the life of the physical parts which composed it, it would cease to exist ; by the latter you still have a pump, and if the method be continued, a practically enduring one with a life terminable only at such a period as it is deemed desirable not to make any more substitutions of its worn parts. In other words, a self-perpetuating or phoenix-like contrivance.

"It may be argued that generally works do not last the anticipated length of time, and that they may become useless either through physical decay, or else lose their value by virtue of new improvements, in kind, or else are rendered unavailable by growth of the system, and that where a few parts or structures might last longer than had been anticipated, nevertheless a general average might be arrived at in this way.

"But take the case where a waterworks plant, located on

the side of a stream or lake, consists of a pumping plant, stand pipe, and sheet iron distributing mains. The life is assumed at twenty years for the average of the entire plant, and a sinking fund has been provided so that at the end of the twenty years the plant can be duplicated. It is now found at the end of the twenty year period that the deterioration was not so rapid, and that the average life of the plant will be ten years longer. In that case, the water company has received all of its money. Upon what basis will the rates be fixed? The money has been repaid, in addition to the interest thereon. Upon what is that company going to collect? The city has expressly repaid it the money, which it invested upon the old plant, upon the basis that it can renew its old structures and not impair its own capital? But for a period of ten years it will not require a cent of that capital. If it collects the same rates now, it is collecting upon a 'going business,' which in this case and for the next ten years will have a value at least equal to the cost of the plant, and the money representing said cost can be put at interest earning an additional sum.

"The general theory of deterioration is not applicable to the property of a private corporation for rate-fixing purposes, to the extent of setting aside a certain percentage each year, based upon a fixed term of years.

"Whilst it is applicable to a municipality, because if any surplus should arise therefrom, said surplus will inure to the benefit of the whole community, whereas if a surplus accumulates for a corporation supplying a city and its inhabitants the benefit inures to the stockholders of that company.

"It is urged that an annual allowance should be made, so as to distribute the cost to the consumers over a period of years—as against making one set of consumers pay the whole at the time the renewals must be made. This should undoubtedly be done by the city, but the sum so allowed should be paid to the water company, only when the renewals are required. Of course the objection that the uncertainty of the period, which would affect the annual amount, as to whether the deterioration would be faster or slower than the time determined upon would be still urged. Still if you had made an annual allowance and your period terminated

earlier, you would have to raise only the difference between what you had accumulated and what was required. It would not require the whole sum to be raised at one time. If the period terminated later than the time fixed, you would be freed from the annual contribution" (pp. 591-4).

And:

"Repairs signifies the efforts to ward off deterioration.

"Maintenance is the result of steady repairs. It is the annihilation of deterioration. If a plant deteriorates, it is—to that extent—not maintained. It is only the practical difficulty—impossibility in many cases—of steadily maintaining, which causes deterioration to take place. Waterworks do not differ in this respect from other works—railways for instance—which use a physical plant, exposed to 'wear and tear.'

"If deterioration is allowed to take place and acts of maintenance (i. e., repairing) are only undertaken periodically, it is called renewal.

"A physical plant must maintain itself i. e., earn enough to keep itself intact, that is, in as good condition as it originally was. The providing of appliances better than the original ones is, to that extent, new construction (additional investment).

"Renewals is as just stated, the term applied to such repairs as cannot be kept up steadily or to repairs caused by deterioration which has progressed so far that repairs in the above sense (current repairs) are not deemed worth making, and the deteriorated parts must be replaced.

"Whilst the city is bound to allow the company money sufficient to keep the system in repair and maintain it, it is also bound to renew it for the company, owing to the very fact that it allows the company no sinking fund for that purpose.

"The life of a plant, or any part of it, is greatly affected by the goodness—or unavoidable badness—of maintenance. In the case of pipes, as of rails, where hardly anything can be done to counteract the daily steady deterioration (wear and tear) deterioration goes on until renewal is necessary.

"Construction expenses means the sums spent to create the artificial parts of the plants, such as dams, pipe lines, tunnels, etc., and is ordinarily employed to indicate the cost of the original work at the time the plant or water works was first put in use.

"New construction, as its term signifies, relates to the work done since the original work was completed, and is generally applicable to extensions of the system, and means work *de novo*.

"Improvements, is sometimes applied to new construction, but strictly speaking, signifies an addition to, or modification of, a structure already in existence.

"Betterments, is sometimes used to signify improvements.

"Operating expenses—strictly construed, are the charges incurred in operating or running the plant, and includes the wages of reservoir keepers, flume and conduit patrolmen, watchmen, screen-tenders, engineers, firemen, etc., fuel, lubricants, etc., and are distinct from maintenance, which comprises the charges necessary to keep the plant in order, so that it can be operated.

"Administration expenses, include salaries of the officers of the company, such as the President, Chief Engineer, Secretary, Attorney, etc., and the employees of the Bookkeepers, Collection and Inspection departments.

"The Board of Supervisors have hitherto allowed to the water company one sum under the heading of operating expenses for administration, operating and maintenance charges" (pp. 596-7).

Second:

In making their estimates of the value of complainant's property, none of its witnesses make any deduction from the value of a new plant by reason of the alleged depreciation since the plant was constructed. The witnesses assign two reasons for this omission to

deduct in value what they elsewhere contend should be allowed in rates, viz., (1) for rate-fixing purposes the plant must be considered of greater value than for purposes of sale, and of equal value as if new; and (2) the value of the service rendered is as great from an old plant as from a new one. Both of these reasons are but other ways of stating that the plant does not depreciate; that its worn out or discarded portions are replaced; that its efficiency is maintained. Why, then, should there be a greater allowance for depreciation than a sufficient amount to make such replacements and maintain such efficiency? That amount has always been allowed.

Mr. Hering testified, on direct examination, that he made no deduction for deterioration of the plant (p. 3513), and on cross-examination he testified:

"XQ. 2597. Do you consider that anything should be taken off for depreciation when the point involved is the fixing of rates?

"A. I do not so consider it.

"XQ. 2598. What is the difference?

"A. In the case of a sale the buyer takes over the whole plant in the condition in which it is found and assumes all responsibility for the future. It is, therefore, fair and proper that if the plant is depreciated the buyer should not pay the price of original cost, but one which is fair, considering the condition of the works on the date of sale. The buyer then assumes the responsibility for repairs and for a replacement of the works which are partly worn out at whatever date they will be worn out. The case is different if the question pertains to the fixing of rates, provided that the owner assumes the responsibility of keeping the works in permanent repair, in permanent usefulness, so that they can comply with the contract. In the case of a water company

I would say, so long as the company can furnish water of the proper quality and quantity, and assumes the responsibility of maintaining the works in condition to do this, then the works should be valued at the value of construction. To use a simile which I have heard applied to such a case I will say that, in the case of a street-car company, when the cars have somewhat depreciated and the horses have somewhat depreciated in age and usefulness, or the machinery by which electricity is made, or cables are drawn, is depreciated, there is no reduction in the fare charged to ride upon the cars, the company assuming the responsibility for carrying the passengers properly, according to the contract, but the company must then, if it is a company, keep the works so that they can adhere to the terms of their contract or franchise, as the case may be" (pp. 3897-8).

And:

"XQ. 2602. And you consider that is a fair measure of their value to-day, although they are not new?

"A. For the purpose which you have yourself stated on several occasions—for the purpose of rate-fixing, because that is the equivalent. If it was a question of sale, I should most assuredly deduct for depreciation on all of the works that would so require it. Of course, a tunnel would not depreciate in value, but most of the work does, even the excavation which is made to lay a new pipe in; it depreciates with the pipe, that is to say, the value of the first excavation has disappeared completely when the pipe is worn out because you have to make a new excavation to lay the new pipe. Rock excavation in that trench does not depreciate because that need not have to be done over again.

"XQ. 2603. Does an earth dam depreciate?

"A. An earth dam, if well built, depreciates very little. We have estimated sometimes nothing and sometimes a life of 100 years merely to put down a figure, but that is equivalent almost to perpetuity.

"XQ. 2604. In your opinion, then, the works have a higher value for the purpose of rate-fixing than they have for the purpose of sale?

"A. Yes, sir, they have" (pp. 3898-9).

Upon the value of the service rendered by an old plant, Mr. Adams testified:

"XQ. 167. Would you say that old water works, other things being equal, would be of the same value as brand new ones built at the present time?

"A. The answer to that question again depends upon the purpose for which value is determined. If the value is determined for rate-fixing, and it has been the policy of the rate-fixing authorities to make no allowance for depreciation or, if making any allowance at all, simply making it from year to year as a contribution to a fund to be used for the purpose of renewals or as the repayment from year to year of the investment in structures which have actually passed out of use during the preceding year, then we may say that the value of an old plant, if you choose to so call it, that is, a plant in actual use, is worth just as much for rate-fixing purposes as a brand new plant would be. This is also justified by the further thought that the water which is delivered to the consumer through a pipe which has been in use for some years is just as good and just as effective for his purposes, or even more so perhaps, than water which is delivered to him through an entirely new pipe; in other words, the service rendered to the consumer is just as valuable delivered through a system that has been in use for a number of years, so long as the system is maintained in a proper condition, as if it were delivered to him through a brand new system" (pp. 4909-10).

Mr. Stearns was of the opinion that whatever sum was allowed in the rates for depreciation should be taken into account in fixing a valuation on the property.

"XQ. 818. What percentage of depreciation would you say would be proper to allow in the case of flumes?

"A. I think that none ought to be allowed in the valuation for the purposes of rate-fixing.

"XQ. 819. You think, do you, Mr. Stearns, that it would

be fair and proper to allow the corporation an additional income on account of depreciation but not to reduce the value of their properties on account of deterioration?

"A. I was assuming in that statement that a sum was not paid each year, under the present circumstances, for deterioration.

"XQ. 820. But supposing a sum is allowed for depreciation, then, in your opinion, would the value of the property be considered less by the same amount?

"A. I think the amount allowed for depreciation should be taken into account in determining the value of the works for rate-fixing.

"XQ. 818. In other words, you think if a sum is allowed in the income, for fixing the rates, to cover the percentage of depreciation, that in fixing the rates the value should be considered less the depreciation?

"A. No, I think it follows that it is the same; a proper allowance should be made. It is not clear in my mind just what that should be; it is a little complicated.

"XQ. 819. Why should it not be the same sum?

"A. I should assume that a part of the sum, after a few years, would be spent for renewals, for things that required renewals.

"XQ. 820. What difference would that make?

"A. I do not think I could answer that question in detail; it is getting a little complicated for me" (pp. 4419-20).

Third:

In the Water Rate Investigation of 1901-02, Mr. Schussler testified that the increase in the cost of cast iron pipe at that date over its original cost would more than make up any depreciation in that item. He said:

"Q. I am talking about the rate of depreciation on the material.

"A. I don't know whether there is any necessity of writ-

ing off anything for the reason that a large portion of the property was bought when iron was very cheap. During the time that we put in the largest amount of large and heavy pipe in this pipe system iron was very low down so that we got iron as low as \$26 and \$28 a ton. It has since increased nearly 50%, and that probably would more than make up any depreciation on account of rust in small pipes laid a great many years ago" (p. 2635).

Mr. Stearns found that such especial skill had been displayed in the construction of complainant's plant as to offset all deterioration and add an additional ten per cent to its value. He said:

"Q. 257. Do you consider the works of this company to be above or below that standard in point of skill and enterprise in their location, selection, design and construction?"

"A. I consider them to be decidedly above.

"Q. 258. What allowance, then, would you make for that feature?"

"A. I gave that matter careful consideration and concluded that I would allow for that especial skill that has been shown a sum that would be sufficient to offset the deterioration of the plant and to add 10% to its value as otherwise obtained" (p. 4277).

Mr. Adams testified as to the superior quality of complainant's pipe as follows:

"XQ. 532. You say that the wrought-iron pipes of the Spring Valley Water Company have a much greater life than wrought-iron pipe which is laid in the ordinary manner?"

"A. Yes.

"XQ. 533. And cost more money, I suppose?"

"A. Yes.

"XQ. 534. If it is true that they are of extraordinary quality and therefore cost more than ordinary wrought-iron pipe, and if an income is allowed upon that increased ex-

penditure, it would not be fair to allow any depreciation, would it?

"A. That depends altogether upon the permanent policy of the rate-fixing authorities in taking care of depreciation. Of course, such pipes are subject to some deterioration. There can be no doubt about that, but in a lesser degree than on some works. It certainly would be improper to allow nothing in the fixing of rates, for such deterioration unless it be the established policy of the rate-fixing powers to reimburse outright the company at such times as these pipes must be renewed.

"XQ. 535. The testimony in this case shows this, that wherever it is necessary to replace a pipe that that is charged to operating expense and is paid for out of the rates; whenever a small pipe is taken up and one of a larger size is laid the difference between the cost of the two is charged to operating expenses, and so forth?

"A. If that policy is consistently followed out there is no reason why any other allowance should be made from year to year for deterioration in those pipes" (pp. 5013-14).

On the same subject of the superior excellence of the system, Mr. Schussler is very emphatic. It is axiomatic that the more excellent the system the less the deterioration.

Fourth:

Only a small part of the complainant's plant is subject to depreciation; hence, any allowance based on an estimated value of the whole plant would be improper.

Mr. Dockweiler said:

"In a property like Spring Valley, the percentage of the parts which suffer appreciable decay is very small, and is

practically confined to the meters, flumes, trestles and pumping plants.

"The pipe lines, serving as conduits, and the city distribution system are practically as good today as when laid. The water rights, lands, reservoirs, dams, masonry, tunnels, can be considered as permanent" (p. 599).

Fifth:

The amount of depreciation is not proved. In the decision of Judge Farrington in the 1908 case, it is said that, "While there is considerable testimony " as to depreciation, the proper amount to be allowed " for that element is not free from difficulty." That state of facts is more true of the record in this case than of the 1908 case. The testimony of Messrs. Adams, Webster and Schussler there referred to was in form of affidavits introduced in the 1908 case which are not in evidence here. The only evidence we have been able to find in this record on the amount claimed for depreciation is the following:

Mr. Schuyler (on behalf of complainant) said: "I " think that the probable average value of depreciation " on a waterworks plant of this character is about one " per cent on its cost" (p. 5473).

Mr. Grunsky (on behalf of defendants) stated that, assuming the life of the plant to be forty years, and also assuming that one-half of the plant was subject to depreciation, the amount to be set aside annually to

meet such depreciation would be about two-thirds of one per cent of the capital invested (p. 180).

Mr. Adams testified:

"XQ. 528. What properties of the Spring Valley Water Company would you say are subject to depreciation?

"A. Pipe systems are always subject to deterioration; machinery installations are subject to deterioration; structures of a more or less temporary character, that is, wooden structures, are subject to deterioration; structures that are intended to be useful for a limited length of time are also subject to depreciation. There is not very much of a system of waterworks, in the way of structures, that is not subject in some degree—it may be a very minute degree, so small as to be undeserving of consideration—to deterioration.

"XQ. 529. Taking the wrought-iron pipe, for instance, what would be your best judgment as to the percentage of depreciation of wrought-iron pipe?

"A. That is rather a difficult question to answer.

"XQ. 530. I mean the wrought-iron pipes of this company, laid where they are laid?

"A. I have not given any thoughtful consideration to that question. In order to give an opinion one should know as intimately as possible the exact nature of the experience which the company has had in the length of life of pipe, and the character and causes of such failures as may have occurred in the past, and should also know, if possible, somewhat of the present condition of pipes in use. If I give an opinion it would necessarily be of a very approximate character and not conclusive even to myself.

"XQ. 531. What is generally accepted by engineers?

"A. I do not believe I can even answer it in that way, because the riveted pipes of the Spring Valley Water Company are not comparable with the riveted pipes as they are usually employed in works, that is, they have been built and laid with a great deal more care than is usually customary. It is also true that the company has had very remarkable success in securing permanency to this class of

construction, so that the probable length of life that would be acceptable as a general proposition applied to this class of pipe I do not think would be applicable to the works of the Spring Valley Water Company.

"XQ. 532. You say that the wrought-iron pipe of the Spring Valley Water Company have a much greater life than wrought-iron pipe which is laid in the ordinary manner.

"A. Yes" (pp. 5012-3).

While the above testimony is very unsatisfactory as a basis of computing any allowance claimed for depreciation, the testimony in this record (partly referred to in the foregoing discussion) shows the same "relatively high present value for the perishable property as compared with its probable original cost," to which Judge Farrington referred. The Court cannot, upon final hearing, as it has upon preliminary hearing, fix the value of this or any other element claimed by complainant, arbitrarily or without definite evidence to support its finding of value. Defendants submit there is an entire absence in this record of any evidence from which the amount to which complainant claims it is entitled for depreciation can be judicially determined.

HAZARD OF ENTERPRISE.

Complainant contends that an additional allowance should be made to it in the rates by reason of the hazard of its business. The legal aspect of such contention is discussed in an earlier part of this brief. We now refer to certain testimony showing the absence of such "hazard," in the usual acceptance of that term.

In only one case, that of June 15, 1867, is the President's Annual Report quoted in full in the earlier Minute Books of complainant (Book "B," page 263). But in that case the President reports to the stockholders of complainant as follows:

"Gentlemen: Our receipts last year were \$536,374.16 against \$468,754.28 in the year previous, say 1865 and '66, showing excess in favor of year 1866 and '67 of \$67,619.88. Our general expenses have been about \$60,000. We paid in dividends to stockholders about \$360,000, leaving a balance of \$116,374.16."

"Gentlemen: You will remember that at your last meeting you authorized the Board of Trustees to borrow on the company's credit \$500,000 to complete all our projected works. We have issued our bonds for \$162,000, which, with the surplus income of the year, was employed in the payment of our works now in construction. These bonds certainly present the best and surest investment for widows' and orphans' money. They yield a good percentage and have a long number of years to run. Our income and its slow but steady increase are the best proofs of my assertion."

Mr. Reynolds, the complainant's expert accountant, finds that the far-seeing capitalists who were holders

of complainant's stock, at the time of the above report, were anxious to increase their holdings as much as possible. He testified:

"Regarding this sale of 20,000 shares in 1868, at \$58 per share: It was cheap, but was not too cheap at the rates of dividends the company was paying, which was only six per cent on the par value of the stock in 1868.

"A former stockholder having \$5,800 could and did subscribe for and pay it out for 100 shares of the stock which would only pay him a dividend of \$600 per year when he could have taken his \$5,800 and loaned it out on good security at 15 per cent per year, netting him \$870 per year. Why would he buy this stock? Because he believed the company was building and establishing a property and business that in the future would bring him more money for his \$5,800 than he could earn or get by loaning it out on mortgage at 15 per cent.

"The fact is established by the results. The fact that practically every share of the 20,000 shares was taken and paid for by old stockholders of the company who had studied the conduct and operation of the company and who were satisfied with its conduct and progress. Every former stockholder was entitled to his pro rata and took it and paid for it. For instance, John Parrott and Mr. Luning owned 3,000 and 2,400 former shares respectively, and subscribed for and took 1,000 and 800 new shares respectively. They could only earn on these shares, old and new, six per cent dividends and yet they were able to loan and did loan their money at 15 per cent backed by security at this same date. What induced them to subscribe and pay for these new shares? What possible inducement could they have had except the future prospect of the company? They relied on the future of the Spring Valley, and should they or their successors now be denied?

"In 1867 the company resolved and issued their bonds, second series, for \$500,000, bearing interest at 10 per cent, payable semi-annually, and had difficulty in selling them

above par, and there were none of them sold above par and were borrowing money at not to exceed $1\frac{1}{4}$ per cent per month, which is 15 per cent per year. Capital is far-seeing, and it is possible that such capitalists as I have named, Mr. Parrott and Mr. Luning, may have figured that the company had to have money, and if by refusing to buy the bonds, they would compel the company to sell them more shares, giving them a larger proportion of the property with which they were familiar, and in the future of which they had confidence" (pp. 5789-90).

Mr. Schussler, referring to the same period, said:

"XQ. 272. Everybody considered it a very safe investment, did they not?

"A. Yes, sir. It is different now. You would almost call a man insane now if he would go into a water corporation to supply a city with water.

"XQ. 273. Does that mean that all the people who bought your bonds were insane?

"A. No, sir, but I mean that now anybody going into the business now, and spending millions of dollars to build a new water works for the city, I do not think it would show very good judgment. But having so much money invested in an institution like our corporation has, they have to protect it and take care of it" (pp. 1647-8).

And again Mr. Schussler testified that it is the fear of improper motives influencing the Board of Supervisors that constitutes the hazard to complainant's business:

"XQ. 307. You consider, then, that the prospect of a reasonable rate being maintained has a good deal to do with estimating the value of a company's property supplying water?

"A. If it is established by law in an impartial court that the city and the people in the City Hall have the right

to fix the rates at any price they please, then water works property is not worth much.

"XQ. 308. Then, you think that that fact—the fact that the Constitution gives the municipality the power to fix the rates reduces very greatly the value of the property?"

"A. No, sir; I did not say that; I beg your pardon. I said that if the authorities are at liberty to fix any rate they please, for political or other reasons, for water supplied to a municipality, then water works properties are not worth what they are or will be if a fair, equitable rate is established on a fair valuation" (pp. 1653-4).

Mr. Hering was of the same opinion. He said:

"XQ. 1585. Would you consider that, in view of those facts, the investment of money has been really attended by any risks?"

"A. I do because there was no guarantee that the rates would always be sufficient to pay the expenses. Sometimes it might arise that they were not sufficient (p. 3718).

And:

I think the power to fix rates is a very serious power in that respect" (p. 3719).

Counsel for complainant entirely agree with their witnesses upon this point. They say on page 348 of their opening brief:

"What are the special risks and responsibilities assumed by the Spring Valley Water Works? None except those forced upon it by the Constitution of California."

This states the argument very clearly. Prior to the adoption of the present Constitution, the company was prosperous, its securities were gilt-edged, "the best and surest investment for widows and orphans' money."

But the placing of the rate fixing power in the hands of the Board of Supervisors, and the fear that they may "fix any rate they please, for political or other reasons," constitutes a hazard for which extra allowance should be made. This demand is directed against the organic law of the State, and not based on any inherent hazard of complainant's business or properties. In sustaining the provisions of the State Constitution, the Supreme Court has held that the Board of Supervisors "are bound in morals and in law to exercise an "honest judgment as to all matters submitted for their "official determination. It is not to be presumed that "they will act otherwise than according to this rule" (*S. V. W. W. vs. Schottler*, 110 U. S., 354).

Complainant's argument on this point presumes what the Supreme Court says cannot be presumed, viz.: that the Board of Supervisors will act otherwise than as above indicated. Upon such presumption a hazard to the business and property of complainant is sought to be established. The attempt to add to complainant's income for fear that the value of its properties will be reduced by the failure of the rate-fixing body to properly perform its duty is absurd.

REASONABLE VALUE OF THE SERVICE.

All the decisions recognize that the reasonable value of the service in itself is one of the elements to be considered in determining the question of the adequacy of rates; but no decision, as far as we are advised, indicates upon what basis this value is to be determined. Complainant's brief contains two suggestions upon this point. On pages 332-340 is found an extended criticism of Mr. Dockweiler's tables, which were submitted by defendants, which shows that the writers of that brief have not grasped the purpose or weight of such tables. This is followed by a copy of Mr. Adams' table (p. 4762 of testimony), which is based principally upon the "*family rate, six persons, or house 30x 40—8 rooms.*"

If cities collected all of their revenue from this one class of customers, or if this class could be considered as an average of the total consumption and revenue, then Mr. Adams' tables might be of some value. The fact is, however, that neither condition is true. The income from water sold in municipalities comes from meter rates and flat rates, from the public service, from mercantile and manufacturing establishments, from shipping, from a variety of different sized houses, to which special charges are made for each fixture, size of house, area of grounds under cultivation, number of animals kept, etc. In some cities the ratio of metered and unmetered customers is altogether different from that in others. The additional fixtures and other items

shown in Mr. Adams' tables do not make the results a fair average of the whole.

The only way to arrive at the amount of money a community pays for its water per annum, is to divide the total sum of money collected for the year, *from all sources and classes of customers* by the number of customers, which will give the average rate per consumer per annum.

The total quantity of water consumed during the year and the price at which it was sold per million gallons is not given by Mr. Adams. Buffalo used 319 gallons per consumer daily while San Francisco used only 88. Buffalo received \$16.27 per million gallons and San Francisco, under the 1903-4 rate, would have received \$162.38 per million gallons, or 10 times as much (Defendant's Exhibit No. 73). In Mr. Adams' table, there should generally be added to the charge against the consumers named, the percentage contributed by them through general taxation for the water used or paid for by the city, which would increase the per capita charge against this class of consumers. His table does not show what proportion of the total revenue is raised from the particular class of consumers which he uses for illustration. The profits or loss of a business are not determined by the rate at which a single article out of a large stock is sold for. A comparison which does not include all the elements making up the total is not fair. For instance, it would manifestly be unfair to take a single item or element in a service as a basis of comparison between cities such as

the quantity of water delivered per consumer per day and argue that the same quantity in each city should produce an equal amount of money.

The other suggestion upon this subject found in complainant's brief is upon page 67, where Mr. Adams is quoted as follows:

"A comparison of rates with other cities is not a proper test unless it also be shown that all conditions of obtaining water and its distribution are the same in all places."

We agree with this general statement, and it is on that very basis that Mr. Dockweiler prepared his tables, which set forth what each city now pays and what it would have to pay under similar conditions of comparison, using for a base the requirements which those cities would have to comply with if the water works were privately owned.

The figures given cover only such plants as are municipally owned, for the reason that reliable data as to privately owned plants was not obtainable (pp. 514-5). The data which was used was obtained from official sources and can be relied upon as being authentic and trustworthy (see Remarks Column of Defendants' Exhibit No. 73). It will be noted that the information tabulated upon Defendants' Exhibit No. 73 covers the total cost of the water works to date; the total cost of maintenance and operation; the rate per cent paid by each city upon its issued bonds; the rate of taxation and percentage of value assessed; and many other data.

The rate which Mr. Dockweiler calls the "theoretical rate," is the reasonable rate for each city, under the conditions which apply to that city. This "theoretical" or reasonable rate was arrived at as follows: To the total amount of annual operation and maintenance charges, as reported by the city officials, was added interest upon the total cost of the water works properties, at the rate per cent which the city pays on its bonds, and to this total was added the taxes which would be chargeable against the cost of the properties (if privately owned) at the rate of taxation prevailing in each city as reported by the assessors.

This sum total represents the amount which a city would have to raise, if, like a private water company, it were compelled to pay interest on the money invested in the water works and pay taxes on the same, in addition to operation and maintenance charges.

By dividing this total sum by the number of consumers, the "theoretical receipts per consumer" is obtained.

By dividing the total yearly receipts for water in each city by the number of consumers, the "actual receipts per consumer" is obtained. -

The comparisons between this "theoretical rate" or reasonable value of the service, and the actual rate paid is shown by Defendants' Exhibit No. 83.

The figures given for San Francisco on this exhibit differ from the other cities in that the "theoretical rate" given for that city is the amount which would have been received by complainant from water rates

alone under the ordinance of 1903-04, if it had been enforced; and the actual receipts are based upon what the complainant actually received from all sources during the same year.

Said Exhibit No. 83 is as follows:

DIAGRAM SHOWING ACTUAL RECEIPTS PER CONSUMER BY MUNICIPAL WATER WORKS COMPARED WITH THEORETICAL RECEIPTS IF SAME PLANTS WERE PRIVATELY OWNED—YEAR 1903.

No. of City.	Name.	Population supplied with water.	Theoretical receipts per Consumer.	Actual receipts per Consumer.
30	Los Angeles, Cal.....	188,000	\$1.51	\$4.11
33	Fall River, Mass.....	112,602	1.66	2.10
79	Harrisburg, Pa.....	60,000	1.68	2.05
12	Milwaukee, Wis.....	315,000	1.72	1.53
48	Richmond, Va.....	110,000	1.74	1.62
63	Savannah, Ga.....	75,000	1.81	1.32
147	Sacramento, Cal.....	33,000	1.83	3.52
2	Chicago, Ill.....	1,908,000	1.83	2.00
13	Detroit, Mich.....	332,522	1.98	1.59
22	Kansas City, Mo.....	225,000	2.10	3.21
6	Baltimore, Md.....	530,000	2.25	1.63
7	Cleveland, O.....	428,000	2.33	2.21
92	Dallas, Tex.....	47,000	2.36	3.13
21	Providence, R. I.....	202,800	2.39	3.06
67	Manchester, N. H.....	55,000	2.41	2.33
46	Seattle, Wash.....	115,000	2.44	3.27
8	Buffalo, N. Y.....	400,000	2.46	1.90
3	Philadelphia, Pa.....	1,370,000	2.51	2.62
59	Somerville, Mass.....	67,000	2.57	1.76
94	Brockton, Mass.....	40,000	2.59	2.60
19	Minneapolis, Minn.....	155,000	2.65	1.85
40	Portland, Ore.....	120,000	2.79	3.28
39	Lowell, Mass.....	104,000	2.83	2.05
44	Grand Rapids, Mich.....	60,000	2.86	2.12
47	Hartford, Conn.....	91,464	2.87	2.91
56	Lynn, Mass.....	80,000	3.16	2.78
42	Atlanta, Ga.....	75,000	3.31	2.65
24	Rochester, N. Y.....	171,000	3.34	2.67
43	Albany, N. Y.....	100,000	3.54	3.31
18	Louisville, Ky.....	172,000	3.59	2.51
127	Fitchburg, Mass.....	29,000	3.63	2.37
80	Yonkers, N. Y.....	55,000	3.65	3.03
4	St. Louis, Mo.....	500,000	3.73	3.55
75	Erie, Pa.....	42,000	3.84	3.60
66	Evansville, Ind.....	30,000	3.90	3.09
132	Taunton, Mass.....	27,350	3.95	2.54
122	Newton, Mass.....	36,700	4.30	3.64
11	Cincinnati, O.....	335,000	4.37	2.61
58	New Bedford, Mass.....	62,000	4.44	3.31
50	Nashville, Tenn.....	49,000	4.97	3.51
5	Boston, Mass.....	597,900	5.43	4.01
9	San Francisco, Cal.....	373,000	5.21	5.86

The foregoing table shows the actual cost of water per consumer per annum in each city; and also what such water would cost per consumer under the conditions assumed for private ownership. It is this latter amount which is claimed to be the reasonable value of the service for each city if its water works were privately owned.

We do not claim that because the actual receipts per consumer in Boston are \$4.01 per annum, that in San Francisco a consumer should not pay more than \$4.01 per annum; but we do say, that if Boston were compelled to pay interest on the cost of its water works, and taxes on the same, in addition to maintenance and operation charges, that \$5.43 per consumer per annum would be the reasonable rate *for that city*. Similarly the reasonable or "theoretical" rate for each city is ascertained. When comparison is made between the rate per consumer which would have been received by complainant under the ordinance of 1903-04 (given in the foregoing table under theoretical receipts for San Francisco) with the reasonable rate in all the other cities named, it is found to be equaled in only one city, viz: Boston. It is said by opposing counsel, however, that this proves nothing for the reason that conditions are different; that some cities obtain and distribute their water with much less investment and expense than others. This must be admitted. And for that reason comparisons of all the elements of cost and operation of water systems in different cities is necessary. It

was for this purpose that the large table (Defendants' Exhibit No. 73) was prepared by Mr. Dockweiler.

While comparison of water rates of different cities may not in itself be conclusive, a comparison of all the conditions under which the cities are situated, viewed from the physical and financial aspect of the water works themselves, is the best and only source of just comparisons.

To ascertain what is the reasonable value of the service in the case of San Francisco, it is necessary to compare San Francisco with other cities and ascertain if there are any conditions met with in this city which are not encountered in other cities. If the conditions are different, what is the extent and effect of the difference? For instance, if San Francisco requires storage reservoirs, do other cities require them? If pumping stations are necessary for San Francisco, are they necessary for other cities? etc.

The table contained in Exhibit No. 73 shows for the fifty-three cities set forth only actual original data furnished by the officials of the respective water plants.

The data is arranged under eighty-one columns, and is divided into two sections: one grouping all physical data, and the other all financial data.

The physical data are grouped under thirty-nine columns, as follows:

A. Number in Bul. No. 20, U. S. Census, 1903.

1. City.
2. Date of Construction.
3. Date when Fiscal Year ends.

Population:

- 4. Total.
- 5. On Lines of Pipe.
- 6. Supplied with Water.
- 7. Owner.
- 8. Source of Supply.
- 9. Mode of Supply.

Capacity:

- 10. Of Impounding Reservoirs, Gallons.
- 11. Of Distributing Reservoirs, Gallons.
- 12. Of Works, Gallons per day.
- 13. Miles of Mains.

Distribution:

- 14. No. of Taps.
- 15. No. of Meters.
- 16. Percent of Taps Metered.

No. of Hydrants:

- 17. Public.
- 18. Private.
- 19. Hydrants, per mile of main.

Pressure in Lbs. per Sq. In.:

- 20. Ordinary.
- 21. Fire.
- 22. Total Consumption for the Year, Gallons.
- 23. Total Pumpage for the Year, Gallons.
- 24. Per cent of Consumption Pumped.
- 25. Pump Capacity, gallons daily.

Average Head against which Pumps Work,
Feet:

- 26. Static.
- 27. Dynamic.
- 28. Total Gallons Metered during the Year.
- 29. Percent of Consumption Metered.
- 30. Total Gallons Filtered during the Year.
- 31. Percent of Consumption Filtered.
- 32. Average Daily Consumption, Gallons.
- 33. Daily Consumption per capita, Gallons.
- 34. Daily Consumption per consumer, Gallons.
- 35. Daily Consumption per Tap, Gallons.
- 36. Population, per mile of Main.
- 37. Consumers, per mile of Main.
- 38. Population, per Tap.
- 39. Consumers, per Tap.

The Financial Data are grouped under forty-two headings, with subheads under Revenue and Expenditures. The total cost of the several works, with their bonded debts and floating debts, are also shown.

These headings are as follows:

- A. Number of City.
- 40. Total Cost of Works to Date.
- 41. Total Cost by U. S. Census, 1903 (Bulletin 20,
p. 104).
- 42. Bonded Debt.
- 43. Floating Debt.
- 44. Percentage of Cost of Works upon which Interest
is being paid.

- 45. Average Rate of Interest (%).
- 46. Present Value of Sinking Fund.

REVENUE.

Water Rents:

- 47. Metered Consumers.
- 48. Unmetered Consumers.
- 49. Public Service.
- 50. Received from Taxes.
- 51. Miscellaneous Meter and Service Connections,
Rents, etc.
- 52. Total Ordinary Receipts.
- 53. Extraordinary Receipts, from Bonds and Similar
Securities, etc.
- 54. Total Receipts during Year.
- 55. Cash Balance from Last Year.
- 56. Total Revenue from all Sources, including bal-
ance.

EXPENDITURES.

Expenses:

- 57. Interest.
- 58. Taxes.
- 59. Operating.
- 60. Maintenance.
- 61. Miscellaneous.
- 62. Total Expenses.
- 63. Net Revenue.

Payments for Property:

64. Bonds Paid.
65. Payment to Sinking Fund.
66. Construction.
67. Total.
68. Grand Total Paid Out During Year.
69. Amount Invested per Million Gallons daily Capacity of Plant.
70. Amount Invested per Million Gallons daily Delivery of Plant.
71. Amount Invested per Mile of Mains.
72. Amount Invested per Tap.
73. Amount Invested per Capita.
74. Amount Invested per Consumer.
75. Total Expenses for Taxes, Miscellaneous, Interest, Maintenance and Operation, Bond and Sinking Fund Payments, per Million Gallons Delivered.
76. Expenses for Taxes, Interest, Maintenance, Operation and Miscellaneous, per Million Gallons Delivered.
77. Expenses for Maintenance and Operation per Million Gallons Delivered.
78. Ordinary Receipts per Million Gallons.
Total Cost per Annum based on Revenue Received from all Consumers, Public Service, Taxes and Miscellaneous:
 79. Per Capita.
 80. Per Consumer.
 81. Per Tap.

The last two columns give the number of the city again and the Sources of Information and Remarks.

This table is so voluminous that its insertion at this point would interrupt the continuity of the brief. It has been divided into pages, however, and in that form is printed as an appendix to this brief. The Court is respectfully referred to the original exhibit on file, which gives in a more convenient form the comparisons sought to be made. Reference is also made at this point to the smaller tables prepared by Mr. Dockweiler, which show in graphic form some of the striking comparisons set forth on the larger table. No attempt has been made to reproduce these smaller exhibits, as they are, in a sense, repetition; but the attention of the Court is respectfully called to the originals on file, for more forcible illustration of the comparisons than it is possible to show in this brief. These smaller tables are designated as Defendants' Exhibits Nos. 69 to 72 and 74 to 84.

The more important comparisons shown on this table are summarized in the following:

RESUME OF DEFENDANTS' EXHIBIT NO. 73.

- | | |
|----------|---|
| Col. 6. | Eight cities have a greater population supplied with water than San Francisco (54 are shown). |
| Col. 11. | Eleven cities have greater capacity of distributing reservoirs (46 shown). |

- Col. 12. Twelve cities have greater daily capacity of works (48 shown); Boston should be included here also.
- Col. 13. Eleven cities have greater mileage of mains (54 shown).
- Col. 14. Nine cities have a greater number of taps (53 shown).
- Col. 15. Five cities have more meters (54 shown).
- Col. 16. Twenty-two cities have a larger per cent of taps metered (51 shown).
- Cols. 17-18. Eight cities have more hydrants (54 shown).
- Col. 19. Fifteen cities have more hydrants per mile of mains (52 shown).
- Cols. 20-21. Four cities have higher pressure on mains (48 shown).
- Col. 22. Eleven cities have higher consumption during the year (54 shown).
- Col. 25. Eight cities have greater pump capacity (37 shown).
- Col. 32. Eleven cities have higher daily consumption (total) (54 shown).
- Col. 34. Thirty-eight cities have higher daily consumption per consumer (54 shown).
- Col. 35. Thirty cities have higher daily consumption per tap (53 shown).
- Col. 36. Nine cities have greater population per mile of mains (50 shown).
- Col. 37. Ten cities have greater number of consumers per mile of mains (54 shown).

- Col. 39. Fifteen cities have more consumers per tap (53 shown).
- Col. 40. Three cities have greater cost of works (53 shown).
- Col. 52. Three cities have greater total ordinary receipts (54 shown).
- Col. 57. Only one city has higher expenses for interest (53 shown).
- Col. 58. San Francisco has highest expenses for taxes (51 shown).
- Cols. 59-60. Five cities have greater expenses for maintenance and operation (53 shown).
- Col. 62. Three cities have greater total ordinary expenses (54 shown).
- Col. 63. Three cities have greater net revenue than the actual net revenue of the Spring Valley Water Company (54 shown).
- Col. 69. One city has more invested per million gallons daily capacity (48 shown).
- Col. 70. Four cities have more invested per million gallons daily delivery (53 shown).
- Col. 71. One city has a greater amount invested per mile of mains (53 shown).
- Col. 72. One city has a greater amount invested per tap (52 shown).
- Col. 74. One city has a greater amount invested per consumer (53 shown).
- Col. 76. One city has a greater amount paid for

- ordinary expenses per million gallons delivered (53 shown).
- Col. 77. Seven cities have higher expenses for maintenance and operation per million gallons delivered (53 shown).
- Col. 78. One city has higher ordinary receipts than the actual receipts of the Spring Valley, per million gallons delivered, and
- Two cities have higher ordinary receipts than the receipts from water rates of the Spring Valley Water Company would be under 1903-4 Ordinance (54 shown).
- Col. 80. The annual rate per consumer is highest for the Spring Valley Water Company figured on both bases—both actual and what they would receive under the Ordinance 1903-4 (54 shown).
- Col. 81. The annual rate per tap is highest for the Spring Valley Water Company figured on both bases—both actual and what they would receive under the Ordinance 1903-4 (53 shown).

RESUME OF DEFENDANTS' EXHIBIT NO. 81.

- Col. 17. Theoretical total receipts are greater for only three cities than for the Spring Valley Water Company.

RESUME OF DEFENDANTS' EXHIBIT NO. 82.

- Col. 5. Theoretical annual rate per consumer is higher for one city only (42 shown).
- Col. 7. Theoretical rate per million gallons is higher for only three cities (42 shown).

Mr. Dockweiler gave in his testimony (pp. 514-540) many explanations as to the data shown on his Exhibit No. 73. Attention is here called to several interesting facts. Out of a total of fifty-three cities, fifty of them use impounding reservoirs and but three resort to direct pumping (p. 517). In nearly all cities the capacity of the works is considerably in excess of the daily consumption, while in San Francisco the daily consumption is very nearly up to the capacity of the works (p. 517). Fire protection in San Francisco was inadequate even before the disaster of 1906. This is shown by the report of the National Board of Fire Underwriters made in October, 1905, quoted on pages 519-20 of Mr. Dockweiler's testimony.

The daily consumption of water per consumer in San Francisco is very much less than in most of the large cities in the country. Out of a total of fifty-four cities shown, thirty-eight have a higher daily consumption per consumer than San Francisco and thirty have a higher daily consumption per tap. This is an important comparison for the reason that a high consumption per consumer, other things being equal, demands a larger investment and increased cost of service.

Comparisons shown upon the tables of relative investment in the several cities named as compared with San Francisco are interesting. Out of fifty-three cities, only four have more invested per million gallons daily delivery (p. 529). Out of forty-eight cities only one has more invested per million gallons daily capacity (p. 530). Out of fifty-three cities only one has a greater amount invested per mile of mains (p. 537). Out of fifty-two cities only one has a greater amount invested per tap (p. 537). Out of fifty-three cities only one has a greater amount invested per consumer (p. 537). These comparisons show that the total investment in the water works of complainant, upon whatever basis it is considered, is relatively much larger than in most of the large cities with which comparisons are made.

San Francisco also exceeds the other cities in the amount of its expenses, there being only one city which has a greater amount paid for ordinary expenses per million gallons delivery (p. 537-8), and seven cities having higher expenses for maintenance and operation per million gallons delivery (p. 538).

The annual rate of water charged per consumer is highest for the Spring Valley Water Company, upon the basis of the ordinance of 1903-4, than of all the cities shown upon the tables and the annual rate per tap is also the highest for the complainant company.

It is submitted that the comparison of conditions shown on the tables referred to and the foregoing summary shows that no conditions exist in San Francisco,

which are not present in other cities, and that, therefore, the theoretical rate in San Francisco, which is the ordinance rate for 1903-4, can be compared with the theoretical rates existing in other cities as a whole. And, further, that *the fact that such rate in San Francisco is higher than in all other cities with one exception, shows that the reasonable value of the service to the consumer in San Francisco is no more, and is probably less, than the rate prescribed by the ordinance.* It is also submitted that the above method of comparison is a much more reasonable one than that adopted by Mr. Adams. As heretofore stated, his table is based upon the rate to a family of six persons, and a list of certain fixtures and classes of property, designated by him. By dividing his columns of annual rental "A" and "B" by six (the number of consumers in the house assumed by him), we get the average cost of water per consumer per annum for the class of dwelling and number of fixtures given by him. Defendants' Exhibit No. 73 shows the average actual sum collected from each consumer per annum in each of the fifty odd cities, owning municipal water works, set out in that table. Eighteen cities given in Mr. Adams' table are given on said Exhibit No. 73.

The following table (No. 38), shows the comparison of the municipal water plants given by Mr. Adams (p. 4762), which are shown upon Defendants' Exhibit No. 73:

TABLE No. 38.

Comparison of Rates Paid on Six-Room House (used by Mr. Adams) and By All Classes of Consumers (used by Mr. Dockweiler).

	Mr. Adams, page 4762.		Annual revenue per consumer.			No. of City in Defts' Ex. No. 73.
			“A” 6	“B” 6	Defendants' Ex. No. 73, Col. 80.	
	“A”	“B”				
Baltimore	13.00	13.00	2.17	2.17	1.63	6
Boston	14.00	25.00	2.34	4.17	4.01	5
Buffalo	7.00	10.00	1.17	1.67	1.90	8
Chicago	17.50	22.50	2.92	3.75	2.00	2
Cleveland	11.50	13.50	1.92	2.25	2.21	7
Cincinnati	11.50	17.65	1.92	2.94	2.61	11
Detroit	6.80	8.80	1.13	1.47	1.59	13
Fall River, Mass...	22.00	32.00	3.67	5.33	2.10	33
Kansas City	19.00	25.00	3.17	4.17	3.21	22
Los Angeles	18.60	25.80	3.10	4.30	4.11	30
Louisville, Ky.	24.20	27.70	4.03	4.62	2.51	18
Milwaukee	18.50	23.00	3.08	3.83	1.53	12
Memphis, Tenn. ...	23.00	43.00	3.83	7.17	3.07	34
Minneapolis	7.90	12.50	1.32	2.08	1.85	19
Philadelphia	12.00	19.00	2.00	3.17	2.62	3
Pittsburg	17.00	26.50	2.83	4.42	2.87	10
Portland, Ore.	21.00	45.00	3.50	7.50	3.28	40
Providence	26.00	35.00	4.33	5.83	3.06	21
Rochester	10.50		1.75		2.67	24
Seattle, Wash.	16.80	21.60	2.80	3.60	3.27	46
St. Louis	14.00	19.25	2.33	3.21	3.55	4
Washington	7.00	8.50	1.17	1.42	1.25	15
San Francisco	18.36	27.27	3.06	4.54	5.21	

The comparison with Mr. Adams' table shows that each consumer in his six-room house in Chicago pays \$2.92 and \$3.75 respectively, while the average for all consumers in that city is only \$2.00. Each consumer in his six-room house in Boston pays \$2.34 and \$4.17 respectively, while the average for all consumers in

that city is \$4.01. Each consumer in his six-room house, etc., in Portland, Oregon, pays \$3.50 and \$7.50, while the average for all consumers in that city is \$3.28.

The comparison in each city shows a different, and, in most cases, a less rate when all consumers are considered than when the special class used by Mr. Adams is considered alone.

The affidavit of Mr. George E. Booker, chief clerk for complainant, filed June 9, 1904, contained a table of water rates charged in the various cities of the United States, and which table was marked Complainant's Exhibit No. 131 (p. 5836). This table is headed as follows:

"In order to ascertain the true facts as to how the water rates of this city compared with the rates of thirty of the principal cities of the United States, in December, 1902, and in the early part of 1903, we wrote to each of the places named below for annual rates, based on a six-roomed dwelling, occupied by one family, and received replies with the following result:"

To reduce Mr. Booker's figures per family to per consumer, we divide by 5, which is the average number of persons per family.

Mr. Booker gives the annual rate for a family in San Francisco, \$17.40, which equals \$3.48 per consumer for this class of consumers. The average annual rate

for all consumers in San Francisco by the ordinance of 1903-4 was \$5.21, and complainant actually collected \$5.86 per consumer (Defendants' Exhibit No. 73).

We have shown above the fallacy of judging a rate by what one class of consumers pays unless every other element and every other class is also considered. Comparing the actual average amounts of money paid by each consumer per annum for each city as set forth by Mr. Dockweiler in Defendants' Exhibit No. 73, column 80, with the annual rate per consumer of this class given by Mr. Booker as set forth on the following comparative table (No. 39) upon which is set out the cities given by Mr. Booker, it is to be noted that marked differences exist between the class rate and the average rate per consumer.

TABLE No. 39.

Comparison of Rates Paid by Family of Five Persons
(used by Mr. Booker) and By All Classes of Con-
sumers (used by Mr. Dockweiler).

City.	Mr. Booker.		Defendants' Exhibit No. 73, Column 80.	No. of City.	
	Total for Family.	Per consumer per annum.	Average per consumer per annum.		
Detroit	\$ 6.90	\$1.38	\$1.59	13	1903-4 ordinance.
New York	8.00	1.60			
Buffalo	8.20	1.64	1.90	8	
Chicago	9.00	1.80	2.00	2	
Cleveland	10.50	2.10	2.21	7	
Rochester	10.50	2.10	2.67	24	
St. Paul	11.30	2.26			
Minneapolis	12.00	2.40	1.85	19	
Albany	12.60	2.52	3.31	43	
Reading	14.00	2.80	2.19	49	
Cincinnati	14.40	2.88	2.61	11	
Toledo	14.50	2.90			
Indianapolis	15.50	3.10			
Newark	16.75	3.35			
Wilmington	17.00	3.40	2.44	51	
San Francisco	17.40	3.48	5.21		
Nashville	18.00	3.60	3.51	50	
Milwaukee	18.00	3.60	1.53	12	
Alleghany	18.75	3.75			
St. Louis	18.90	3.78	3.55	4	
Philadelphia	19.00	3.80	2.62	3	
Omaha	19.25	3.85			
Boston	20.00	4.00	4.01	5	
Pittsburg	20.00	4.00	2.87	10	
Columbus	20.70	4.14			
Portland	21.00	4.20	3.28	40	
Kansas City	21.75	4.35	3.21	22	
Jersey City	22.00	4.40			
Providence	29.00	5.80	3.06	21	
Syracuse	34.00	6.80			
New Orleans	35.50	7.10			
Average rate of the above 30 cities	17.25	3.45			

DEFENDANTS' OBJECTIONS TO ADMISSIBILITY OF TESTIMONY AND MOTIONS TO STRIKE OUT.

During the taking of complainant's testimony counsel for defendants entered one thousand and fifty-seven (1,057) objections to the relevancy, competency and materiality of sundry questions propounded by counsel for complainant. Some of these objections are general in their nature, but many of them are specific, pointing out the exact grounds upon which the testimony is claimed to be inadmissible. It is manifestly impossible to discuss or even to indicate these many objections without enlarging this brief beyond all reasonable limits. Many of them relate to testimony which in the judgment of the writers of this brief, can have no possible bearing upon the decision in this case. A few instances of the general character of objections are given below. Reference is here made to all the remaining objections in order that it may not be thought that any of them have been waived by failure to urge the same in this brief. With regard to all of such objections it is respectfully asked that they be considered as set forth in the record in connection with any evidence which may be considered by the Court to have a bearing upon the final decision.

A list of all objections entered by counsel upon both sides has been prepared with references to the number of the question objected to, the page of the testimony and the general nature of the objection. This list is

filed in an addenda to this brief, and will furnish ready assistance in referring to such objections.

The most important objections to MR. SCHUSSLER'S testimony are summarized in general objections and motions to strike out found near the end of his direct examination, which are as follows:

"MR. PARTRIDGE—I move to strike out and suppress the answer of the witness as not being responsive to the question. I move to strike out and suppress all those portions of the answer which are not responsive to the question. I move to strike out and suppress the entire answer upon the ground that it is neither evidence nor testimony, but a mere essay of the witness upon certain facts. I move to strike out and suppress the entire answer of the witness upon the ground that it is not addressed to any question of fact or any issue made by the pleadings in either cause. I move to strike out and suppress all the remarks of the witness upon the question of value upon the ground that the witness has not been shown to be an expert upon values, nor is value a subject of expert testimony. I move to strike out and suppress all those conclusions of the witness which were based upon hearsay testimony. I move to strike out and suppress the entire answer upon the ground that it is a conclusion of an expert upon either financial, statistical, political, economical or meteorological questions, and the witness has not been shown to be an expert upon any one of those subjects. I move to strike out and suppress the entire answer upon the ground that it is argumentative. I move to strike out and suppress all that portion of the answer which attempts to establish value for future service upon the ground that the future use of the properties is immaterial, irrelevant and incompetent, and that the future will take care of the future use and give the company an income thereon. I move to strike out and suppress that portion of the testimony which attempts to show that the properties of the company have a value as a whole over their value as units upon the ground that that is all immaterial, irrelevant and

incompetent, and has nothing to do with the question of whether the property is being taken without due process of law. I move to strike out and suppress the entire answer on the ground that the value of the company's properties is not an issue in the cause. I move to strike out and suppress the testimony of the witness as to water rights on the ground that the question of water rights is a legal question and not a subject of expert testimony on behalf of a civil or hydraulic engineer. I move to strike out and suppress all that portion of the answer which is inference. I move to strike out and suppress all that portion of the answer which is deduction. I move to strike out and suppress all that portion of the answer which is theoretical. I move to strike out and suppress all that portion of the answer which is surmise or prediction. I move to strike out and suppress all that portion of the answer which attempts to show a value attached to the ownership of reservoir sites over and above the cost of the lands composing them and the actual cost of the works which have been actually constructed to create a reservoir on those lands. I move to strike out and suppress all that portion of the answer which had to do with the ownership of water sheds upon the ground that their value is not the subject of expert testimony, nor has the witness been shown to be an expert, upon the further ground that it is immaterial, irrelevant and incompetent. I move to strike out and suppress the attempted comparison between the value of reservoir sites for domestic purposes and their value for irrigation or power purposes upon the ground that their value is not within the issues of the cause, upon the ground that the comparison is immaterial, irrelevant and incompetent. I move to strike out the testimony of the witness attempting to show an increase in the value of water rights on account of the knowledge of the owners as to their value upon the ground that that is immaterial and irrelevant because the property could be acquired by the company under the power of eminent domain. I move to strike out and suppress the testimony of the witness regarding the location and the contiguity of storage reservoirs, and their increase in value on that account, because it is immaterial, irrelevant and incompetent; because the

question is immaterial, irrelevant and incompetent so is the opinion as to their location of contiguity to either a source of supply or a source of demand. I move to strike out all that portion of the answer which has to do with the increase of population of the bay counties, and the prediction of the witness as to what the population will be in the future, upon the ground that that is immaterial, irrelevant and incompetent. I move to strike out and suppress the entire answer of the witness upon the ground that it is a mass of conclusions which are properly to be drawn by the Court from the evidence. I move to strike out and suppress all that portion of the answer of the witness which consists of estimates of value because that is immaterial, irrelevant and incompetent. I move to strike out and suppress that portion of the answer of the witness which gives what the map shows upon the same grounds that I objected to the introduction of the map. I move to strike out and suppress the testimony of the witness as to the proposed reservoirs in Calaveras, San Antonio and Arroyo Valle upon the ground that those reservoirs, nor any of them, are constructed, and, therefore, not in use or useful to complainants, or either of them, in supplying water to the City and County of San Francisco, and it is therefore, immaterial, irrelevant and incompetent. I move to strike out and suppress the testimony of the witness as to the proposed future use of the Sunol beds as a place of filtration of water for the proposed reservoirs upon the ground that those reservoirs are not constructed and no water is drawn from them or taken into the filter beds, and no water is supplied from them to the City and County of San Francisco, and, therefore, the property is not in use for that purpose, or useful to complainants or either of them, and therefore immaterial, irrelevant and incompetent. I move to strike out and suppress that portion of the testimony of the witness to the effect that the value of these reservoir sites is enhanced by the proximity of a large population in Alameda County, upon the ground that the County of Alameda, the city of Oakland, the city of Berkeley, the city of Alameda, or other centers of population on the other side of the bay, are not parties to this action, nor is any water supplied by complainants, or either

of them, to them, and, therefore, testimony concerning them is immaterial, irrelevant and incompetent; upon the further ground that the value of reservoir sites is not an issue in the cause or within the pleadings.

"MR. KELLOGG—Mr. Partridge, we agreed that the expressions as to value should apply to these cases although you might use the present tense or I might use it.

"MR. PARTRIDGE—Yes, it applies to both cases.

"MR. KELLOGG—Q. 1235. Mr. Schussler, I will ask you to give your opinion of the values of those properties, which are in use, what those values are, and your grounds in full for your opinion.

"MR. PARTRIDGE—I object to the question as immaterial, irrelevant and incompetent, on the ground that it calls for a conclusion of the witness; upon the further ground that the witness has not been shown to be an expert on values, nor is value the subject of expert testimony" (pp. 1547-1552).

And:

"MR. PARTRIDGE—I move to strike out and suppress the entire answer of the witness to the last question and the interlarded question, upon the ground that it is not responsive to the question. I move to strike out and suppress the entire answers to both questions upon the ground that the value that is attempted to be given is not a subject of expert testimony. I move to strike out and suppress all the answer as being immaterial, irrelevant and incompetent. I move to strike it out and suppress it as not being evidence or testimony at all, nor addressed to any fact, but being a mere conclusion and argument of the witness. I move to strike it out and suppress it because a large portion of it appears to be based upon hearsay testimony. I move to strike it out and suppress it upon the ground that it is the deduction of the witness which properly should be drawn by the Court. I move to strike it out and suppress it because it involves testimony that should properly come from a financial expert, or an expert on political economy, and not from an hydraulic engineer. I move to strike out and suppress that portion of the answer which deals with the knowledge

of the owner of water rights in the past, their increase in knowledge up to the present time, the action of the company in purchasing such real estate, upon the ground that that is not within any of the issues of the cause, nor is it a proper method for estimating the value of water rights; upon the further ground that it is entirely a legal question whether or not the company could not acquire those under the right of eminent domain. I move to strike out, as being immaterial, irrelevant and incompetent, the testimony of the witness as to the study, care, circumspection and inspection and precaution used by the company in avoiding and trying not to excite the cupidity of the owners of water rights. I move to strike out and suppress the testimony of the witness as to the impracticability of exercising the right of eminent domain, or condemnation proceedings, upon the ground that that is a matter for legal determination and not a subject of expert testimony on the part of an hydraulic engineer. I move to strike out and suppress all testimony concerning the litigation in the condemnation proceedings in the Crystal Springs-Hayward-Drinkhouse cases upon the ground that that is not the best evidence, that the matters are all a record of the court, and it is mere hearsay" (pp. 1579-80).

And:

"MR. PARTRIDGE—I move to strike out and suppress the manner in which the company apportioned this payment, upon the ground it appears that a lump sum was paid, and the manner of bookkeeping is immaterial, irrelevant and incompetent. I move to strike out and suppress the testimony of the witness as to the amount of water delivered to the defendants—in the Drinkhouse-Hayward cases upon the ground that the compromise is immaterial, irrelevant and incompetent and not within any of the issues of this cause. I move to strike out and suppress all testimony of the witness as to the unearned increment of these lands upon the ground that the proper basis of estimating whether or not the rates are sufficient is merely the cost of the properties and not any value that they may have acquired by means of increase in population, or other unearned increment. On the same

ground I move to strike out and suppress the testimony as to the desirability of lands in San Mateo County for residence purposes, on the ground that that pertains to the unearned increment, pertains merely to the value of the lands to the complainant corporations and not to the amounts that should be allowed as rates. I move to strike out and suppress the testimony of the witness as to the capacity to which the reservoirs could be increased upon the ground that that is for future use, and therefore immaterial, irrelevant and incompetent. On the same ground I move to strike out and suppress the method of valuation as a unit; upon the further ground that the comparison of the works as a unit with any other unit is improper, unfair, immaterial, irrelevant and incompetent. I move to strike out all that portion of the testimony which consists of prognostications. I move to strike out and suppress the testimony which consists of comparisons with eastern cities upon the ground that that is immaterial and irrelevant and all hearsay. On the same ground I move to strike out and suppress all extracts from the report of John R. Freeman, the committee of engineers appointed for the supply of water for the city of New York, and the extract from the report of Mr. C. E. Grunsky, the former city engineer. Likewise I move to strike out and suppress upon the same ground the comparison between Mr. Grunsky's estimate and the estimates of the Spring Valley Water Company as to the future requirements of water in San Francisco. I move to strike out and suppress, upon the same ground, all the comments of the witness upon Mr. Grunsky's report. I move to strike out and suppress the arguments of the witness upon Mr. Grunsky's report upon the ground that it is mere argument and deduction and the mere bald statement of the witness that Mr. Grunsky's figures are too low; upon the further ground that there is no showing at all as to what the Tuolumne System would actually cost, upon the ground that the comparison is unfair, unjust, immaterial, irrelevant and incompetent. I move to strike out the estimate of the witness on the value as based upon that upon the ground that it is based entirely on Mr. Grunsky's system, and there is no showing at all as to what that system is, the only evi-

dence in the report being hearsay and not the best evidence. I move to strike out and suppress it upon the ground that it is a mere theory based upon another theory—not even an opinion based on the facts. I move to strike out and suppress the theory of the witness as to the necessity of a third pipe line upon the ground that that is testimony as to future use and not as to any properties at the present time in use. I move to strike out and suppress the figures given by the witness as to the amount of interest, operating expenses, taxes, etc., in the years 1910, 1915, 1920 and 1925, upon the same grounds. I move to strike out and suppress the estimate of the witness as to the value of the company's lands and water rights upon the ground that it is immaterial, irrelevant and incompetent, improper, unjust and unfair, being based upon an estimate of a third person, no showing that that estimate is proper or correct and no evidence concerning that estimate in the record except pure hearsay. I move to strike out and suppress that same theory and valuation of the properties, lands and water rights upon the ground that the only basis upon which rates should be established under the Constitution and Statutes of this State is the actual cost. I move to strike it out and suppress it upon the ground that it is based largely upon prophecy. I move to strike it out and suppress it upon the ground that if allowed by the decision of this Court, it would bring about such an unreasonable rate as to make the use of water practically prohibitive. I move to strike out and suppress that portion of the estimate which involves a comparison per 1,000 gallons because, according to the testimony of the witness, that would include a sinking fund for the entire purchase of the works. I move to strike it out and suppress it upon the further ground that there is no showing as to the cost of any other possible system outside of the Tuolumne System. I move to strike it out and suppress it because it includes immense properties which the evidence shows are not in use. I move to strike it out and suppress it because it deducts from the possible cost of construction of the Tuolumne System only the cost of the works actually constructed by the complainants and not the works that would be necessary in order to allow complainants to supply the amount of water

which the witness has testified would be necessary in the future.

"MR. KELLOGG—Q. 1240. I will ask you, Mr. Schussler, to give a resume and recapitulation of the values of these properties.

"MR. PARTRIDGE—I will make the same general objection to that as was made to the other questions—the other questions being immaterial, irrelevant and incompetent the condensations would be immaterial, irrelevant and incompetent" (pp. 1581-4).

The general objections to MR. HERING'S estimates are given in the following:

"MR. KELLOGG—Q. 293. I will ask you to give your opinion to the Court of the present value, being, of course, with reference to the years 1903 and 1904, under the stipulation in this case which I have explained to you, of the plant of the Spring Valley Water Company in use at those times in supplying the city and county of San Francisco and its inhabitants with water, with such added details, explanations and other matters as you deem proper to an explanation in full, and an understanding of your opinion?

"MR. PARTRIDGE—I object to the question as calling for the conclusion of the witness upon a matter which is properly within the province of the Court; on the ground that the question is immaterial, irrelevant and incompetent; on the ground that the subject of value is not a subject of expert testimony nor has the witness been qualified as an expert on value; on the ground that the question is too general and indefinite" (p. 3471).

And:

"MR. KELLOGG—Q. 304. On the basis of this estimate, that is an alternative system, what, in your opinion, is the value of the Spring Valley Water Company's plant in use compared with the alternative system which you have mentioned?

"MR. PARTRIDGE—I object to the question as calling for a conclusion of the witness properly within the province of the Court, and as immaterial, irrelevant and incompetent; upon the ground that value is not a subject of expert testimony nor has the witness been shown to be an expert on the subject of value.

"MR. KELLOGG—Q. (Continuing) I want to add to that, 'as a maximum value.'

"MR. PARTRIDGE—The same objection to the question as amended" (p. 3475).

And:

"MR. KELLOGG—Q. 305. In that sum, or in that estimate, you take the Tuolumne scheme, as outlined by Mr. Grunsky, as the alternative system?

"A. I do.

"Q. 306. Taking the basis of an alternative proposition as a method of estimating value, or maximum value, what sum would you deduct to render the maximum value, in your opinion, a fair, reasonable and proper value?

"MR. PARTRIDGE—The same objection as to the last question, on the ground that it is all in the realm of theory and fancy and imagination, and on the ground that the question does not call for any facts, or any answer to a properly hypothetical question, or any subject upon which an expert might properly give testimony" (p. 3476).

And:

"MR. PARTRIDGE—I move to strike out and suppress the final estimate of the witness as to the value of the properties of the complainant corporations upon the ground that it is entirely based upon hearsay" (p. 3729).

An examination of the list of objections above referred to will disclose that objections were made by defendants to all questions propounded to the witness,

MR. F. P. STEARNS, as to his bases of valuation. The general nature of these objections is shown by the following:

"MR. KELLOGG—Q. 197. Applying one of these principles which you have illustrated as a method of valuation, I would ask you what is your opinion relatively of the actual value of the plant of the Spring Valley Water Company now in use in supplying San Francisco and its inhabitants with water, compared with the Tuolumne scheme as proposed, and also as described and estimated in Mr. Grunsky's report upon that proposition?

"MR. PARTRIDGE—I object to the question upon the ground that the subject of value is not a proper subject of expert testimony, and that any testimony concerning the value of the Spring Valley Water Company's plant as compared with the proposed Tuolumne scheme is improper and immaterial, irrelevant and incompetent, vague and most improper" (p. 4259).

And:

"MR. KELLOGG—Q. 255. Mr. Stearns, I want to ask you these two questions: compare the value of the complainant's property in full use with the Tuolumne scheme as contemplated by Mr. Grunsky if not complete?

"MR. PARTRIDGE—I object to the question upon the ground that value is not an issue in the cause, and any testimony concerning value is immaterial, irrelevant and incompetent; on the ground that any testimony concerning the Tuolumne scheme is immaterial, irrelevant and incompetent; comparison with it is improper, on the ground that value is not a subject of expert testimony" (p. 4276).

The testimony of MR. ADAMS upon which his estimates of value are based was also all objected to. The

general line of objections is indicated in the following motion to strike out:

"MR. PARTRIDGE—I move to strike out and suppress the answer as not being responsive to the question. I move to strike out and suppress all those portions of the answer which are not responsive to the question. I move to strike out and suppress all the figures and estimates in the answer upon the ground that, according to the testimony of the witness himself, they are all based upon hearsay. I move to strike out and suppress the entire answer upon the ground that it is not evidence or testimony, or expert testimony, but mere essay from theory. I move to strike out and suppress all that portion of the answer which is inference. I move to strike out and suppress all that portion of the answer which is argument. I move to strike out and suppress all the remarks of the witness on works out of use as conclusions of the witness upon a proposition that is properly within the province of the Court upon a question which is a legal question. I move to strike out and suppress the entire answer upon the ground that the entire answer is a proper subject for an economic and book-keeping expert and not for an hydraulic engineer. I move to strike out and suppress the testimony concerning the diverting dam at Niles and the Upper Pilarcitos Reservoir as not responsive and upon the ground that it appears that neither of those works are in use or useful to complainant, or either of them, in supplying water to San Francisco, and, therefore, testimony or theories concerning them is immaterial, irrelevant and incompetent. I move to strike out and suppress the figure given by the witness, \$50,513,723, as the actual amount contributed by the stockholders to the works, because, in the first place, that is based upon hearsay, and, upon the further ground that that figure was arrived at not by the amount invested by the stockholders, but by a process which was entirely artificial and fictitious of compounding interest annually, as set forth by Mr. Reynolds; upon the further ground that that figure includes the entire amount paid in to the company, with interest compounded annually, less the dividends paid, and that it includes all money expended by

the company for whatsoever purpose, whether for properties in use or not in use. I move to strike out and suppress the testimony and conclusions of the witness as to the figure \$29,962,888, upon the ground that it appears by the testimony that no such sum was ever expended by the company, because it appears by the testimony that that sum includes all properties out of use, in use and not yet in use. I move to strike out and suppress the testimony of the witness regarding any addition to be made for going or established business upon the ground that that is a conclusion of the witness regarding the legal questions, and a matter properly within the province of the Court. I move to strike out and suppress the testimony of the witness as to the actual cost of the properties which the witness arrives at by adding the figure of \$9,177,000, given by Mr. Reynolds, for the amount actually paid in by the stockholders, and \$15,975,000, the amount of bonds outstanding, upon the ground that that testimony is based upon hearsay, and upon the further ground that that figure includes moneys paid out for all properties not yet in use and properties that have gone out of use, because the deductions of the witness made from that figure for properties gone out of use do not include the lands and water rights on Lobos Creek; it does not include in the amount deducted the sums of money paid out by the corporation for the Islais Creek properties and for the charter and rights of the Islais Creek Water Company; it does not include the money paid out for the charter and other properties of the San Francisco City Works. By 'included' I mean always included in the deductions made. And it does not include, in the deductions made, the amount of money paid out for the streams known as the coast streams; it does not include, in the deductions made, the amount of money expended by the corporations for the Crystal Springs Dam in excess of the width or cross section of that dam required for its present height or to store the amount of water that can be at present put into it; it does not include the properties in Alameda County now in use, and particularly it does not include the Calaveras properties which, it appears by the testimony, are not in use; it does not include the amounts of money paid out for Arroyo Valle; it does

not include, in the deductions, the sums of money paid out by the corporations and which are included in the amount paid in by stockholders in the bond issue of properties now in the name of and held by the Suburban Water Company and from subsidiary companies to corporations and co-partnerships, and also by individuals. Furthermore, it does not include in the deductions which should properly be made the interest on the properties that were acquired a great many years ago and have never come into use, and which it is not the present intention of the Company, or is it practicable, ever to use. I move to strike out and suppress the testimony of the witness regarding the policy of the city authorities in not allowing depreciation and consequent loss of capital upon the ground that that testimony is derived from hearsay; upon the further ground that it appears from the testimony of the Chief Engineer of the corporation that depreciation is indirectly allowed to the corporation by the fact that repairs and renewals are charged to operating expenses and allowed for in the rates. I move to strike out and suppress the testimony of the witness regarding the increase in value of the lands and water rights and other properties not structural; also the testimony regarding established business and its value, and the value of the service rendered and the influence of the service rendered upon value, upon the ground that those are conclusions of the witness in matters which are purely legal and within the province of the Court. I move to strike out and suppress the testimony of the witness regarding the actual cost being the summation of the amount paid in by stockholders and the amount of outstanding bonds, upon the ground that the witness has not deducted therefrom the amount of money paid to George H. Ensign, for his franchise and charter, and does not include the deductions for the lands, properties and water rights in Lake County; the lands, properties and water rights in Sausalito; the lands, properties and water rights on Stevens Creek; it does not include, in the deductions made, the amount of money paid and expended in the Searsville and Portola Reservoir, and in the abandoned tunnel between Searsville and Crystal Springs; it does not include a deduction for the so-called Niles Aqueduct; and, further, the sum-

mation of the amount paid in by the stockholders and for the outstanding bonds does not include any other deductions which should be properly made, and not specifically mentioned; upon the further ground that the summation does not include the sums of money paid out for contingent and legal expenses and charged upon the books to those items" (pp. 4769-73).

Much of MR. SCHUYLER'S testimony was objected to. Attention is particularly called to objections as to comparisons with the Tuolumne System:

"MR. PARTRIDGE—I object to anything concerning the proposed Tuolumne scheme upon the ground that it is immaterial, irrelevant and incompetent" (p. 5395).

And:

"MR. LONG—I suppose, Mr. Kellogg, you are willing to stipulate that the objections Mr. Partridge has made to this line of testimony are all considered repeated as to the comparison between the Tuolumne scheme and the Spring Valley Water Company?

MR. KELLOGG—Yes, they will be considered as repeated" (p. 5446).

Also as to going business value:

"MR. PARTRIDGE—I now move to strike out and suppress all the testimony of the witness concerning the value of the going business of this corporation upon the ground that it appears to be based upon hearsay and based upon a self-serving declaration of a witness for the company in a non-judicial proceeding" (p. 5474). ..

Motions were made to strike out certain parts of

Mr. Schuyler's estimates on the ground that they were based upon hearsay, as for example:

"XQ. 329. On the San Andreas system you also took all your quantities from Mr. Schussler, did you?"

"A. Yes, sir, I took them all from Mr. Schussler's evidence.

"XQ. 330. I will ask you right here if that is true as to all your testimony on the structural works?"

"A. Yes, sir, throughout.

"MR. PARTRIDGE—I move to strike out and suppress all the testimony of the witness because it appears that the basis of his figures is hearsay" (p. 5538).

It is submitted that the objections reserved and motions to strike out made by defendants are amply sufficient to present to the Court all questions as to the admissibility of the testimony of the several witnesses of complainant upon their theories of valuation.

REPLY TO COMPLAINANT'S BRIEF.

A considerable portion of the opening brief filed by complainant consists of extracts from and argument concerning portions of the testimony which, in the judgment of counsel for defendants, can have no material bearing upon the decision in this case. We shall therefore refer to these matters briefly and without extended argument.

ALLEGED ARBITRARY ACTION OF SUPERVISORS.

Complainant's discussion of the facts of the case is introduced by an argument, the burden of which seems to be that the Board of Supervisors have not exercised "an honest judgment as to all matters submitted for their official determination," as the Supreme Court says they are bound to do, for the reason that water rates have been lowered while population and real estate values have increased; that "the provisions of the " Constitution of the State of California as practically " carried out, have occasioned a confiscation of a portion of complainant's property," because complainant has not been permitted in later years to enjoy the same rate of income as in former years. On page 96 of its brief, complainant refers to certain alleged facts of municipal political history which are admittedly neither a part of the record nor a subject of judicial cogni-

zance. If defendants should indulge in the same character of argument certain facts from earlier portions of the same history might be instanced which would justify the conclusion that higher rates had been formerly arranged for and fixed than the circumstances warranted. But we desire to confine this argument to the record before the Court, and, therefore, content ourselves with the assertion that there is no evidence in this record which will warrant any different conclusion on this matter than that announced by Judge Gilbert in the decision on preliminary injunction in the 1904 case, and by Judge Farrington in the 1908 case. In the former opinion it is said:

“Nothing is disclosed in these proceedings, nor is anything shown in evidence on this hearing, which tends to indicate that the board acted otherwise than in good faith and with an honest purpose to arrive at a fair valuation of complainant’s property, and to fix a reasonable rate of compensation for its water and service” (165 Fed., 662).

In response to a similar argument made in the 1908 case, Judge Farrington says:

“In short, there is nothing in the record which indicates that the Supervisors, or either or any of them, were actuated by any other motive than to do the thing which was just and right” (165 Fed., 681).

The same conclusions must be drawn from the record now before the Court.

The right of the public to regulate public utilities has been resisted by public service corporations from the time when it was first asserted. Each successive

affirmance or extension of that right has been announced against the determined protest of the regulated corporations, and has commanded their unwilling and tardy consent. While the public interest and estate in all such corporations is now finally established by the decisions of the court of last resort, the principle has become unquestioned at so comparatively recent a date that the public service corporations have not yet become fully reconciled to the necessity of regarding the title and right of control of their properties as subject to the paramount rights of the public. Hence it is that when rate-fixing bodies honestly reach different conclusions as to the adequacy of rates from those which the corporations honestly believe to be proper, the latter are wont to charge the difference of opinion to lack of investigation or improper motives. Something of this sort pervades that portion of complainant's brief now under consideration. Accepting as premises the propriety of former rates and the accuracy of the exaggerated estimates of its chief engineer, complainant reaches the conclusion that confiscation has necessarily resulted from the change of rates. The difficulty is that both premises are erroneous.

DECREASE OF RATES.

On pages 100 and following complainant produces tables tending to show that the rates have been decreased in years gone by, while at the same time new

extensions and betterments have been made by the company. They also indicate on page 110 that in certain years there has been a decrease in the price of water while the cost of maintenance of certain other municipal departments has increased. All such argument is beside the question and but tends to confuse the real issue of this case.

The fact that rates have been high in the past is in itself of no significance. The figures submitted in Table No. 1 and other portions of this brief show that they were higher than necessary to provide a reasonable rate of income; but even if they were but adequate compensation at that time, they are of no importance as furnishing a criterion for the present conditions.

Justice Peckham said in *Stanislaus Co. vs. San Joaquin* (192 U. S., 213):

"It is not confiscation nor a taking of property without due process of law, nor a denial of the equal protection of the laws, to fix water rates so as to give an income of six per cent upon the then value of the property actually used, for the purpose of supplying water as provided by law, even though the company had prior thereto been allowed to fix rates that would secure to it one and a half per cent a month income upon the capital actually invested in the undertaking."

Neither is there any weight in the contention that the cost of the schools or police department have increased while water rates have been decreased. Possibly there have been corresponding improvements in these other departments; possibly they are costing too much; and probably entirely different social and economic questions are involved.

PHYSICAL AND OTHER NATURAL ADVANTAGES.

In a chapter entitled "The Physical Situation," commencing at page 155 of complainant's brief, reference is made repeatedly to certain natural advantages of which complainant has made use in the construction and development of its system. To the extent that these advantages have been bestowed by nature, they are not subject to capitalization as a part of the value of complainant's properties. A public service corporation is entitled to reap what it has sown, including its increase or decrease; but such corporation has not produced the water or other bounties of nature, nor the natural physical advantages surrounding San Francisco.

It must always be kept in mind that under Article XIV of the California Constitution, water is public property.

So likewise are the natural location and natural physical advantages of a community public property in so far as they are naturally adapted to the public water service. As to this Judge Farrington in the 1908 opinion says:

"The value of water as a necessity of life is simply incalculable. San Francisco must have it at any price. Nature has provided a source of supply in the immediate vicinity. This supply, according to the complainant, is sufficient for the present needs of San Francisco with 400,000 population, and with development in the way of dams and conduits, it will be ample when San Francisco's population is 2,000,000."

"A community is . . . entitled to the benefit of such

natural and sufficient facilities for procuring pure water as exist in its vicinity. Communities are in every respect entitled to the benefit of existing natural advantages,' says Judge Savage in *Water District vs. Water Co.*, 99 Me., 371, 387.

"If it be said that San Francisco did not secure these natural advantages, these water rights and watershed lands, but suffered practically all the nearby sources of water to pass into the ownership of complainant, the answer is, these water rights were secured for public service, they are devoted to public service; they have little commercial value for any other purpose; they were acquired under a law which permits reasonable public control of such property for the public good. . . ." (165 Fed., 691-2).

According to the settled law then the complainant cannot bolster up its values on account of natural physical features. It is entitled to an income upon the present value of the investment necessary to develop these natural physical features, but "the communities are in "every respect entitled to the benefit of existing natural advantages."

SKILL AND EXCELLENCE OF CONSTRUCTION.

A second contention running through this division of complainant's discussion is to the effect that its plant is of great value on account of the excellence of judgment and foresight and the excellence of skill exercised in the construction thereof. It must be supposed that complainant's engineers have already been well paid for their excellence of skill, judgment and foresight, and these items should be accounted for under

the amount of actual investment and operating expenses.

The complainant is by law bound to exercise a high degree of skill and excellence in these respects and, to the extent that it has failed therein, is the amount of the investment subject to deduction; but, being so bound, they are never entitled to any special value beyond investment on account of any special degree of excellence.

As to this Judge Farrington quotes further:

"On this subject Mr. Justice Savage further says: 'It therefore seems to be reasonable that a public water service company undertaking to supply a community with water is bound to do so wisely and economically. It is bound to take advantage of practical natural facilities' . . ." (165 Fed., 692).

REDUCTION OF INSURANCE RATE.

Reference is made on pages 116 and 117 of complainant's brief to Mr. Schussler's testimony as to a reduction of insurance rates having resulted from the fire protection furnished by complainant. On pages 212 and 213 complainant asserts "that this Court can and will take judicial notice" of certain facts resulting from the earthquake of April 18, 1906. This latter contention warrants a reply to the argument of reduced insurance rates by reference to the finding of the Court in the 1908 case, based upon the evidence then submitted to it. On page 702 of 165 Fed., it is said:

"Neither has it been shown that complainant was entirely free from fault in permitting its feeder-pipes in the lower part of the city to remain in swampy and loosely filled ground. It was in and on such ground the earthquake wrought its greatest havoc. There is unexplained and unanswered testimony tending to show, not only that it was possible to have placed main feed-pipes on a solid foundation, but that the chief engineer of the company, realizing the danger years before the disaster, urged the construction of a system on proper ground. It is difficult to understand why the consequences of such ill-advised location of pipe lines should be visited on the public and not on the company."

Even if complainant had furnished San Francisco with proper fire protection the argument that the consumer should credit upon his water rate what he saves in insurance premiums, loses sight of the fact that the company receives payment from the city for each hydrant maintained, and also entirely leaves out of consideration the question of the duty owed by a water company to the municipality.

PROPERTIES ACQUIRED FOR FUTURE USE.

Another contention of the complainant is to the effect that its works possess special values on account of provisions made for the future. On page 245 of complainant's brief Mr. Adams is quoted as saying with reference to properties adapted to future use: "I do not, therefore, see how they can be fairly omitted from consideration in determining value." The

same theory is advanced by other witnesses for complainant.

This contention is disposed of by Judge Farrington in the 1908 decision, where it is said (165 Fed., 697) :

"The valuation put on this property, by Mr. Schussler, like that alleged in the bill, is open to the objection that it includes a large amount of property not now in use. . . ."

"It is not just to compel consumers to pay for more than they receive, or to pay complainant an income on property which is not actually being used in gathering and furnishing water. If in this case, the company, in anticipation of the growth of the city and its future needs, acquired property for future use at a cost of hundreds of thousands of dollars which is now worth millions, it has acted wisely, but it should be satisfied with the goodness of its bargain and the enhanced value of its property, without asking in addition gratuities from its customers in the way of higher rates. When the property does come into necessary service, the company is entitled to have it credited at its then fair and reasonable value for rate-fixing purposes."

San Diego L. & T. Co. vs. National City, 74 Fed., 79, 83.

"What the company is entitled to demand, that it may have just compensation, is a fair return upon the reasonable value of the property at the time it is being used for the public."

San Diego L. & T. Co. vs. National City, 174 U. S., 739, 757.

"The statement of this rule in practically all the cases, in the present tense, is significant."

In *San Diego L. & T. Co. vs. Jasper*, 189 U. S., 439, 442, Mr. Justice Holmes says:

"If a plant is built, as probably this was, for a larger area than it finds itself able to supply, or, apart from that, if it does not yet have the customers contemplated, neither justice nor the Constitution requires that, say, two-thirds of the contemplated number should pay a full return."

"In *Water District vs. Water Co.*, 99 Me., at page 376, Mr. Justice Savage uses the following illustration:

" 'Suppose that a five hundred horse-power engine was used for pumping when a one hundred horse-power engine would do as well. As property to be fairly valued the larger engine might be more valuable than the smaller one yet it could not be said that it would be reasonable to compel the public to pay rates based upon the value of the unnecessarily expensive engine.' "

The above quotations settle the law to the effect that the property upon the value of which the company is entitled to an income is that necessarily used in present service, and that consideration of properties acquired for the future must be postponed until such properties come into actual use.

PRICES NOT HAMMERED DOWN BY RATE REGULATION.

In the cross-examination of Mr. Adams, counsel for defendants asked the following question:

"XQ. 558. You do recognize that the provisions of the State Constitution really hammer down the real value of the property?" (p. 5020.)

This question is deemed of sufficient importance by complainant's counsel to be quoted twice in their brief (pp. 108 and 398); and is there made the basis of a

somewhat caustic argument as to the alleged attitude of the city authorities in the regulation of rates. In connection with such argument, as well as in several other places in their brief, opposing counsel take occasion to refer to alleged political motives and "the powers behind the throne" as influencing the successive Boards of Supervisors. This matter is noticed only for the purpose of stating that such insinuations find absolutely no warrant in the record before the Court; and weaken rather than strengthen the complainant's case.

The above question upon which so much stress is laid was asked in connection with inquiry from Mr. Adams as to what method he would pursue in valuing the properties of complainant for purposes of sale. In answer to the previous question on that subject, he had stated :

"A. to XQ. 557. Considering all the circumstances governing this particular case I do not think I should reach any different result or pursue any different method than I have pursued here, with the exception that I might, if called upon to advise as to whether or not a company should sell, take into consideration the fact that the law in this State controlling water rates imposes a degree of difficulty and expense upon the private company which would warrant it in accepting a lesser price for its works than it otherwise should accept" (p. 5019).

Then followed the question which counsel object to.

It will be seen that the reference by counsel for defendants was to the provision of the Constitution itself, and not to its administration by the city authorities and that, therefore, the argument sought to be based upon this question is entirely unfounded.

The record shows, however, that Mr. Schussler was of the opinion that at least one investigation was beneficial rather than detrimental to the company and to its securities. In the Water Rate Investigation of 1897 he testified as follows:

"XQ. 5850 . . . Q. Now, how do you account for the fact that since the beginning of this investigation which was carried on on the theory that you were receiving too much when you received 6%, and the board intimated its intention of reducing it to 5%, that the stock in the market has gradually advanced?

"A. I have no idea of that, sir.

"Q. Can you understand why it has advanced notwithstanding all of this, and since you made public announcements recently that you were to offer 8,000 shares of stock on this market for sale within the next year, it has still advanced in spite of that, until it reached, I understand, yesterday 99? I see sales here to-night at $98\frac{3}{4}$; and when we began this investigation it was not more than 97?

"A. Well, I suppose they think that we have made a very good showing before you; and furthermore I have heard a great many people say that we were not treated exactly fairly in the manner that some of you gentlemen have made your inquiries. Now, take that altogether, with the general good opinion of our capability in constructing good works, I have an idea that that has probably given the people confidence.

"Q. The Board of Supervisors, instead of exciting fear and in that way injuring your property, has really been a means of advancing its value, have they?

"A. Yes, sir.

"Q. By giving it a free advertisement before the public as to the method of conducting your works. So the annual investigation by the Board is not an injury to your property?

"A. In this particular case the manner in which the investigation has been carried on has certainly given us a chance to show you the entire works in their proper light. I have had a chance here to bring out things that I would

not have thought of bringing out, but you have given me a chance in answering your questions, to show you exactly what the works are like" (pp. 2951-2).

Again in the Investigation of 1901, Mr. Schussler testified that the rate of interest on complainant's stock was reduced by the company voluntarily prior to the passage of the Ordinance and not as an effect of it:

"I think the dividend was reduced either one or two years ago to 5%. This young man hands me a statement that up to January, 1899, the rate of interest on the stock was 6%, but from February on, that is, two years ago, the rate was voluntarily reduced to 5% on the stock.

"Q. You mean the dividends?

"A. Yes, sir.

"Q. That was by reason of the ordinance passed by the Board of Supervisors?

"A. No, sir, it was passed before the ordinance went into effect and before the rate was fixed two years ago" (p. 2953).

It thus appears that it is the provision of the organic law itself and not the administration of it which affects the value of complainant's stock.

The fluctuations of the stock market are the most unsatisfactory basis of value. Such changes are frequently due to causes which have no relation whatever to the value of the properties represented by the stock.

The recent decision in *Wilcox vs. Consolidated Gas Company* caused a decided drop in the quotations of the stock of the interested company, but it did not affect the value of the properties, except to point out what was real and what was fictitious in that which might have been considered value by the holders of the stock.

The observations of Messrs. Beale and Wyman in their text book on Rate Regulation at section 347 upon this subject seem to be founded on reason as well as authority. It is there said:

“Little if any weight, therefore, is to be attached to the nominal capitalization of the company, even though these shares may now be in the hands of innocent holders. For these holders purchased with imputed knowledge of the public service law by which the State may reduce the rates without unconstitutionality to a point where they will yield no more than a fair return upon actual values.”

INCREASING POPULATION.

The argument that rates should be raised to take care of an increasing population finds little support from the admitted fact that the present consumption of water is practically equal to the full capacity of the plant, and the further fact that according to Mr. Hering (p. 277, complainant's brief), it would require an additional expenditure of about \$15,000,000 to increase the capacity. When this amount has been expended a return may be properly asked thereon, but not before.

Complainant refuses to extend its plant until the City has provided in advance for an income on the increased expenditure. The law compels it to make the expenditure before it may demand the income thereon. In

discussing the possible development of the Coast streams, complainant has quoted from Mr. Schussler on page 243 of its brief, but in such quotation, stars are inserted to indicate the omission of this very important sentence: "Of course it will be an expensive affair; it will take a good deal of time, and money." This omitted sentence furnishes the answer to the entire argument on allowance for future development. When this "good deal of time and money" has been expended it will be time enough to consider an income upon it, but not before.

FINAL CHAPTER.

This brief has exceeded the limits within which we had hoped to confine it. Its length may possibly be excused by the voluminous record and the conflicting testimony of the witnesses, as well as by the magnitude of the interests involved and their importance to the people of San Francisco, whom the defendants represent. Our effort has been to state the contentions of the defendants in such a manner as to furnish the Court with convenient references to such portions of the record as are relied upon to sustain our position.

The testimony is involved, conflicting and uncertain.

It is said in the 1908 decision that "practical scientific "methods of valuation ought to yield approximately "the same results" (165 Fed., 685). That is another way of saying that the engineering expert witnesses in this case have not used "practical scientific methods of valuation." The most eminent hydraulic engineers in the country were called as witnesses and their testimony is presented in this record. The estimates of these learned gentlemen disclose remarkable differences both as to the theories applied and methods adopted in arriving at their respective valuations, and also as to the final results obtained. As pointed out in the 1908 decision, the highest valuation is three times the lowest; and between the highest and lowest estimates of the witnesses produced by complainant there is a difference of from \$25,000,000 to \$30,000,000. These discrepancies between the valuations of complainant's own witnesses is one of the striking elements of weakness in its case. The average of the estimates of complainant's witnesses is more than double that of the estimates of the witnesses for defendants.

While the testimony is thus confused and unsatisfactory, the questions presented for the Court's determination are few and simple, and most of the principles of law applicable thereto are settled. The decree in this case will probably be based upon the answer to the following inquiries:

Has the complainant made a sufficient showing to justify the Court in substituting its judgment as to the

adequacy of the rates involved for that of the legislative body?

What has complainant proved to be the fair and reasonable value of complainant's properties in actual use by it and useful for supplying water to the City of San Francisco and its inhabitants at the dates involved in these actions?

What is a fair, reasonable and adequate rate of income to be allowed to complainant on such value?

Did the ordinances in question provide such an income?

What is the reasonable value of the service rendered to the City of San Francisco and its inhabitants by the complainant company?

To the above questions, all others discussed by counsel for the opposing parties are incidental and comparatively unimportant.

Fortunately nearly all of the legal principles which control the determination of these questions are well established by the decisions of the court of final authority. The most important of those principles, as applying to this case, is that which has been unequivocally announced in the two most recent decisions of the Supreme Court, viz: that in cases of this character, a decree that rates are confiscatory must be based, upon certainty and not on speculation. As is said by Mr. Justice Moody in the Knoxville case:

"The jurisdiction which is involved here ought, as has been said, to be exercised only in the clearest cases. If a company of this kind chooses to decline to observe an ordinance of this nature and prefers rather to go into Court with

the claim that the ordinance is unconstitutional, it must be prepared to show to the satisfaction of the Court that the ordinance would necessarily be so confiscatory in its effect as to violate the Constitution of the United States" . . . "It is enough (to justify the refusal of a decree) that the whole case leaves us in grave doubt."

Knoxville vs. Knoxville Water Co., 29 Sup. Ct. Rep., 149-153-4;

Willcox vs. Consolidated Gas Co., 29 Sup. Ct. Rep., 192.

As argued in preceding portions of this brief, this is the point at which complainant's case fails. With the conflicting theories and estimates of value which the complainant has presented, can the Court determine "that the whole case leaves it" otherwise than "in grave doubt"? We submit that it cannot.

The rule which requires certainty of proof is the result of that other elementary rule that in cases of this character the burden of proof is upon the complainant "at every stage of the proceedings." We believe that we have made a sufficient showing in this brief to compel the same conclusion here as was announced by the Supreme Court in the Consolidated Gas Co. case, where it is said:

"Upon a careful consideration of the case before us, we are of the opinion that the complainant has failed to sustain the burden cast upon it of showing beyond any just or fair doubt that the acts of the Legislature of the State of New York are in fact confiscatory" (29 Sup. Ct. Rep., 201).

The principles thus forcibly stated in the latest decisions are not new. In 1903, in the case of *San Diego*

Land & Town Co. vs. Jasper, 189 U. S., 439, at p. 441, Mr. Justice Holmes said:

"In a case like this we do not feel bound to re-examine and weigh all the evidence, although we have done so, or to proceed according to our independent opinion as to what were proper rates. It is enough if we cannot say that it was impossible for a fair-minded board to come to the result which was reached."

And in 1899, in the case of *San Diego Land & Town Co. vs. National City*, 174 U. S., 739, at p. 760, Mr. Justice Harlan said:

"It is sufficient to say that upon a careful scrutiny of the testimony, our conclusion is that no case is made that will authorize a decree declaring that the rates fixed by defendants' ordinance, looking at them in their entirety—and we cannot properly look at them in any other light—are such as amount to a taking of property without just compensation, and therefore to a deprivation of property without due process of law. There is evidence both ways. But we do not think that we are warranted in holding that the rules upon which the defendants' board proceeded were in disregard of the principles heretofore announced by this Court in the cases cited. The case is not one for judicial interference with the action of the local authorities, to whom the question of rates was committed by the State."

The cases cited in this last decision are referred to in other parts of this brief.

When the record in this case is measured by the rules laid down by the Supreme Court in the above and other cases, it falls short of the requirements necessary to obtain a decree setting aside the action of the legislative body. It cannot be said from an examination of this record that "it was impossible for a fair-minded board

to come to the result which was reached"; nor that "the rules upon which the defendants' board proceeded were in disregard of the principles heretofore announced by this Court in the cases cited"; nor that "the whole case leaves" the Court otherwise than "in grave doubt."

On the contrary it can be truly and justly said of this record that "the complainant has failed to sustain the burden cast upon it of showing beyond any just or fair doubt" that the acts of the defendant Board of Supervisors "are in fact confiscatory."

An interesting article appears in the last number of the American Law Review (March-April, 1909) under the title "Will the Supreme Court Become the Supreme Legislature of the United States?" (43 Am. Law Rev., p. 228). The writer of that article calls attention to the fact that out of the large number of cases in which the question of inadequacy of rates has been raised, "In "no case up to the present time has the Supreme Court "of the United States ever set aside any rates, fixed by "a legislative tribunal, which the Court found would "yield, under ordinary circumstances, some compensation above legitimate expenses" (p. 247).

The article referred to contains a review of the principles announced in the important rate cases in the Supreme Court, and is valuable as showing the adherence by the majority of that Court to the principle announced in 1877, in *Munn vs. Illinois* (94 U. S., 113), that the limit of reasonableness established by the legislative body is binding upon the courts as well as upon the people. The danger of the transfer of legislative pow-

ers to the courts by a re-examination of all rates is also clearly set forth.

Complainant contends for additional values based upon properties which it has acquired for future use but which are not now in actual use in supplying water to defendants; for additional values by reason of its franchise, its going business, unit value, skill and excellence of construction of its works, absence of competition, ability to expand for the future, "physical conditions attending the purveying of water in San Francisco," etc. Some of these so-called elements of value belong to the public and not to the complainant; but, as to all of them, no value has been proved; hence none can be allowed.

The rule announced in the 1908 decision as to the impropriety of consideration of properties acquired for future use in establishing present rates and quoted on page 775 of this brief, finds full affirmance by the Supreme Court in the Consolidated Gas Co. case, where it is said:

"There must be a fair return upon the reasonable value of the property *at the time it is being used for the public*" (29 Sup. Ct. Rep., 195).

Counsel for complainant, in the closing portion of their brief (pp. 526-7), concede that the principle above announced may be "applied perhaps with fairness to *some* public callings," but seek to exempt water companies from its effect. It is noticeable, however, that the authorities cited by both Judge Farrington in the 1908 case and by the Supreme Court in the Con-

solidated Gas Co. case involved the properties of water companies. We submit that this question is definitely and finally settled by these authorities.

Reasons are given in preceding portions of this brief why the sundry alleged intangible values contended for by complainant cannot be considered in establishing values for rate-fixing purposes. If, however, no other reason existed, the fact that no value has been proved for any of them is sufficient to negative complainant's contentions.

Regarding the tangible properties of complainant, we submit that the evidence furnished of their value leaves the Court not only "in grave doubt," but in absolute uncertainty. By this is meant that no estimate of value produced by complainant is of such a nature, when considered either by itself or in comparison with the estimates of other witnesses, as to produce either certainty or conviction. It is not enough that the sources of information submitted to the Court should "point to" a certain figure, as suggested by complainant in the closing chapter of its brief (p. 519). We do not concede that the weight of the testimony in this case even "points to" the figure there suggested; but, if it did, evidence upon which a decree of confiscation can be based must not only "point to" a valuation, but actually carry the Court's judgment to a certain result. Something more than a mere guide post is necessary for this purpose.

In opening the final chapter of their brief, counsel for complainant refer to what they are pleased to des-

ignate as the "weakness of complainant's political situation." Such argument is immaterial and when, as in this case, the record contains no foundation therefor, it is unwarranted. Unless the record should disclose such arbitrary action on the part of the rate-fixing body as to amount to a refusal to fairly consider the questions presented to it (which cannot be successfully claimed in this case), the motives which prompted the passage of the ordinances are entirely immaterial. The Court is called upon to examine the result and not the processes by which that result was reached nor the motives which prompted the action. Political considerations can have no effect upon the Court's decree, and should find no place in the argument on either side.

The defendants are as anxious as is complainant to have the value of complainant's properties finally established by judicial decree. For the past six years complainant has been endeavoring to prove that such value is something in addition to the amounts fixed by the Board of Supervisors in its annual appraisements. As we view the record, it has signally failed to accomplish that task. Until it can do so and can show by convincing and certain evidence that such valuations and the income allowed thereon are less than the full measure guaranteed to it by the Constitution, the law decrees that it content itself with the income established by the governmental authority to which the duty of regulating its rates has been delegated by the organic law of the State.

Believing that the evidence before the Court war-

rants the following findings, we respectfully ask for the decree of this Court as follows:

1. That it be decreed that complainant has not made a sufficient showing in these actions to warrant a decree setting aside the rates established by the Board of Supervisors, as contained in the respective ordinances.

2. That it be decreed that the value of complainant's properties, used and useful in supplying the City of San Francisco and its inhabitants with water in the fiscal year 1903-04, was the sum of \$20,907,002; which was the value fixed by the sale of those properties, in September, 1903, to which sale complainant was a party.

3. That the value of said properties for the two subsequent fiscal years be decreed to be the same amount, with the addition of such amounts as are shown by the evidence to have been invested in the properties during those years.

4. That, if the Court shall be of the opinion that the price paid for said properties upon such sale does not fix their value for the purposes of this litigation, it then be decreed that the value of such properties for each fiscal year was not greater than the amounts fixed therefor by the Board of Supervisors for each year, to wit:

For the year 1903-04.....\$24,124,389.

For the year 1904-05..... 24,673,212.

For the year 1905-06..... 25,001,441.

5. That the rate of net income upon the value of its

properties to be allowed to complainant as a fair, reasonable and adequate return for the use of such properties be determined by the decree of this Court.

6. That it be decreed that complainant is not entitled in this action to any allowance, over and above the value of its tangible properties actually and presently in use and useful in supplying water to San Francisco and its inhabitants, for properties acquired for future use, or for any of the so-called intangible elements of value contended for by complainant.

7. That it be decreed that the three ordinances, involved in these consolidated actions, and each of them, provided fair, reasonable and adequate compensation to complainant for the services rendered by it during the respective years for which said ordinances were enacted; and that none of said ordinances is unreasonable, confiscatory or in any respect invalid.

8. That the preliminary injunctions issued in each of the three actions be dissolved, and that final injunctions be denied in each case.

9. That the bill of complaint in each case be dismissed; and that defendants recover their costs.

Respectfully submitted.

PERCY V. LONG,

CITY ATTORNEY,

THOMAS E. HAVEN,

ASSISTANT CITY ATTORNEY,

Solicitors for Defendants.

APPENDIX No. 1

STATISTICS

OF

WATER SUPPLIES

OF

CITIES OF THE UNITED STATES

MUNICIPAL PLANTS

FOR THE YEAR 1903

PREPARED BY

J. H. DOCKWEILER, Consulting Engineer

TO

PERCY V. LONG, City and County Attorney

San Francisco, Cal., November, 1905

TABLE No. 1

TO ACCOMPANY REPORT ON

REASONABLE WATER RATES

Note: The line below the numbers of the columns shows the origin of the figures in the columns. "Orig." indicates original data not computed from any other data on the sheet.

Figures show from which columns computations were made and how made.

For the purposes of this table, the fiscal year 1903 has been considered to be the year having six or more months in the calendar year 1903. All statistics are given for 1903, except those for Los Angeles, Cal., and Washington, D. C., in which cases the information obtained for 1904 was more complete and was therefore used.

The figures in Column 41 were taken from Bulletin 20 of the Bureau of the Census, page 104, Table 9, "Waterworks, Gas Works and Electric Light Plants Owned and Operated by Cities."

Financial figures for cities in the Metropolitan Water District (Boston, Somerville and Chelsea) were obtained by adding to each city's own figures that city's proportion of the corresponding figures for the Metropolitan Water Works.

THE CITY OF SAN FRANCISCO IS SUPPLIED WITH WATER BY THE SPRING VALLEY WATER COMPANY, A PRIVATE CORPORATION.

The amount placed in Column 40, "Total Cost of Works to Date," is the valuation fixed by the Board of Supervisors of the City and County of San Francisco, in February, 1903, and set forth in "Bill No. 817."

Number in Bul. No. 20, U. S. Census 1903.	CITY.	Date of Construction.	Date When Fiscal Year Ends.	POPULATION		
				Total.	On Lines of Pipe.	Supplied with Water.
A	1.	2.	3.	4.	5.	6.
		Orig.	Orig.	Orig.	Orig.	Orig.
1	Chicago, Ill.....	1851	Dec. 31, 1903	1,908,000	1,908,000	1,908,000
2	Philadelphia, Pa...	1801	do.	1,378,298	1,370,000	1,370,000
3	St. Louis, Mo.....	1870	Apr. 11, 1904	693,675		500,000
4	Boston, Mass.....	1848	Jan. 31, 1904	597,900	597,900	597,900
5	Baltimore, Md....	1860	Dec. 31, 1903	530,000	530,000	530,000
6	Cleveland, O.....	1856	do.	438,000	435,000	428,000
7	Buffalo, N. Y.....	1850	Jun. 30, 1904	400,000	400,000	400,000
8	Pittsburg, Pa.....	1872	Jan. 31, 1904	375,000	375,000	375,000
10	Cincinnati, O.....	1835(?)	Dec. 31, 1903	351,000	335,000	335,000
11	Milwaukee, Wis....	1872	do.	325,000	315,000	315,000
12	Detroit, Mich.....	1825	Jun. 30, 1904	383,523		332,522
13	Washington, D. C.	1850	Jun. 30, 1905	320,000	320,000	320,000
15	Louisville, Ky.....	1857-60	Dec. 31, 1903	244,000	184,000	172,000
18	Minneapolis, Minn.	1868	do.	225,000	175,000	155,000
19	Providence, R. I...	1871	do.	202,800	202,800	202,800
21	Kansas City, Mo...	1874	Apr. 18, 1904	225,000	225,000	225,000
22	Rochester, N. Y...	1873	Dec. 31, 1903	171,000	171,000	171,000
24	Los Angeles, Cal...	1868	Nov. 30, 1904	190,000	188,000	188,000
30	Fall River, Mass...	1874	Dec. 31, 1903	113,602	113,602	112,602
33	Memphis, Tenn....	1870	May 31, 1904	150,000	120,000	120,000
34	Lowell, Mass.....	1870-3	Dec. 31, 1903	104,000	104,000	104,000
39	Portland, Ore.....	1887	"	125,000	120,000	120,000
40	Cambridge, Mass...	1855	Nov. 30, 1903	96,685	96,685	96,685
41	Atlanta, Ga.....	1876	Dec. 31, 1903	120,000	80,000	75,000
42	Albany, N. Y.....	1800	Sept. 30, 1903	100,000	100,000	100,000
43	Grand Rapids, Mich.	1872	Apr. 30, 1904	100,000	75,000	60,000
44	Seattle, Wash.....		Dec. 31, 1903	140,000	117,500	115,000
46	Hartford, Conn....	1854	Mar. 1, 1904	95,034	91,464	91,464
47	Richmond, Va.....	1830	Dec. 31, 1903	100,000	100,000	100,000
48	Reading, Pa.....	1819	Apr. 6, 1903	86,390	86,130	86,310
49			to Apr. 4, 1904			
50	Nashville, Tenn...	1836	Dec. 31, 1903	90,000	60,000	49,000
51	Wilmington, Del...	1872	"	82,000	82,000	82,000
56	Lynn, Mass.....	1871	"	81,000	80,000	80,000
58	New Bedford, Mass.	1866	"	72,000	62,000	62,000
59	Somerville, Mass...	1868	"	67,000	67,000	67,000
60	Lawrence, Mass...	1874	"	70,000	70,000	66,500
61	Springfield, Mass...	1864	Dec. 10, 1903	66,446	60,000	55,000
63	Savannah, Ga.....	1892	Dec. 31, 1903			75,000
66	Evansville, Ind....	1874	Aug. 31, 1903	65,000	50,000	30,000
67	Manchester, N. H.	1874	Dec. 31, 1903	60,000	55,000	55,000
75	Erie, Pa.....	1867	"	56,363	42,000	42,000
79	Harrisburg, Pa....	1840	"	62,000	62,000	60,000
80	Yonkers, N. Y....	1874	Nov. 30, 1903	56,000	55,000	55,000
85	Holyoke, Mass.....	1873	Dec. 31, 1903	48,973	48,673	48,398
86	Fort Wayne, Ind...	1880	"	65,000	55,000	50,000
92	Dallas, Tex.....	1876	Apr. 30, 1904	76,736	55,000	47,000
94	Brockton, Mass...	1880	Nov. 30, 1903	45,500	44,000	40,000
122	Newton, Mass.....	1876	Dec. 31, 1903	37,600	36,900	36,700
126	Chelsea, Mass.....	1867	Dec. 31, 1903	36,000	36,000	36,000
127	Fitchburg, Mass...	1873	Nov. 30, 1903	34,000		29,000
132	Taunton, Mass.....	1876	"	31,036	28,000	27,350
147	Sacramento, Cal...	1852	Jan. 2, 1904	33,000	33,000	33,000
150	Newport, Ky.....	1872	Dec. 31, 1903	51,000	49,000	49,000
9	San Francisco, Cal.	1858	June 30, 1904	373,000	373,000	373,000

Number in Bul. No. 20, U. S. Census 1903.	CITY.	PHYSICAL RECORD FOR THE YEAR.	
		Owner.	Source of Supply.
A	1.	7.	8.
		Orig.	Orig.
1	Chicago, Ill.....	City	Lake Michigan.
2	Philadelphia, Pa...	"	Delaware and Schuylkill Rivers.
3	St. Louis, Mo.....	"	Mississippi River.
4	Boston, Mass.....	"	Supplied by Metropolitan System.
5	Baltimore, Md....	"	Two streams impounded in lakes.
6	Cleveland, O.....	"	Lake Erie.
7	Buffalo, N. Y.....	"	Niagara River.
8	Pittsburg, Pa.....	"	Allegheny River.
10	Cincinnati, O.....	"	Ohio River.
11	Milwaukee, Wis...	"	Lake Michigan.
12	Detroit, Mich.....	"	Detroit River.
13	Washington, D. C.	"	Potomac River.
15	Louisville, Ky....	"	Ohio River.
18	Minneapolis, Minn.	"	Mississippi River.
19	Providence, R. I..	"	Pawtuxet River.
21	Kansas City, Mo..	"	Missouri River.
22	Rochester, N. Y...	"	Domestic—Hemlock Lake. Fire—
24			Genesee River.
30	Los Angeles, Cal..	"	Los Angeles River, Wells.
33	Fall River, Mass..	"	North Watuppa Lake.
34	Memphis, Tenn....	"	Artesian Wells.
39	Lowell, Mass.....	"	555 Driven Wells.
40	Portland, Ore.....	"	Bull-Run River.
41	Cambridge, Mass..	"	Ponds and Brooks.
42	Atlanta, Ga.....	"	Chattahoochee Riv.
43	Albany, N. Y.....	"	Hudson Riv. and Creeks.
44	Grand Rapids, Mich.	"	Grand River.
46	Seattle, Wash....	"	Cedar River.
47	Hartford, Conn....	"	6 impounding reservoirs.
48	Richmond, Va.....	"	James River.
49	Reading, Pa.....	"	Creeks and Springs.
50	Nashville, Tenn...	"	Cumberland River.
51	Wilmington, Del..	"	Brandywine River.
56	Lynn, Mass.....	"	Artificial Ponds and Sauqus River.
58	New Bedford, Mass.	"	Two Ponds.
59	Somerville, Mass..	"	Supplied by Metropolitan System from the Nashua River.
60	Lawrence, Mass...	"	Merrimac River.
61	Springfield, Mass..	"	Impounding reservoirs fed by streams, springs and surface waters.
63	Savannah, Ga.....	"	13 Artesian Wells.
66	Evansville, Ind....	"	Ohio River.
67	Manchester, N. H.	"	Lake Massabesic.
75	Erie, Pa.....	"	Lake Erie.
79	Harrisburg, Pa....	"	Susquehanna River.
80	Yonkers, N. Y....	"	Brooks and Wells.
85	Holyoke, Mass....	"	Mountain Streams.
86	Fort Wayne, Ind..	"	Wells.
92	Dallas, Tex.....	"	River and Wells.
94	Brockton, Mass...	"	Storage Reservoir of Salisbury Brook.
122	Newton, Mass.....	"	Collecting Gallery near Charles River.
126	Chelsea, Mass.....	"	Metropolitan System.
127	Fitchburg, Mass...	"	Storage Reservoir.
132	Taunton, Mass....	"	Two Ponds.
147	Sacramento, Cal..	"	Sacramento River.
150	Newport, Ky.....	"	Ohio River.
9	San Francisco, Cal.	Private S.V.W.Co.	Watersheds in Vicinity of San Francisco Bay.

Number in Bul. No. 20, U. S. Census 1903.	CITY.	PHYSICAL RECORD FOR THE YEAR.
		Mode of Supply.
A	1.	9.
		Orig.
1	Chicago, Ill.....	Direct Pumping.
2	Philadelphia, Pa...	Pumping to Reservoirs.
3	St. Louis, Mo.....	Pumping direct and to Reservoirs.
4	Boston, Mass.....	Supplied by Metropolitan System.
5	Baltimore, Md....	Gravity and Pumping.
6	Cleveland, O.....	Pumping.
7	Buffalo, N. Y.....	Pumping direct and to Reservoir.
8	Pittsburg, Pa.....	Pumping to Reservoirs.
10	Cincinnati, O.....	" " "
11	Milwaukee, Wis...	Pumping.
12	Detroit, Mich.....	Pumping direct.
13	Washington, D. C.	Gravity and Pumping.
15	Louisville, Ky.....	Pumping.
18	Minneapolis, Minn.	Pumping direct and to Reservoirs.
19	Providence, R. I..	Pumping to Reservoirs.
21	Kansas City, Mo..	Pumping.
22	Rochester, N. Y...	Gravity, Direct Pumping.
24	Los Angeles, Cal..	Gravity and Pumping to Reservoirs.
30	Fall River, Mass..	Pumping to standpipes and tanks.
33	Memphis, Tenn....	Pumping direct.
34	Lowell, Mass.....	Pumping to Reservoir.
39	Portland, Ore.....	Gravity.
40	Cambridge, Mass..	Gravity and pumping.
41	Atlanta, Ga.....	Pumping to Reservoir, thence pumped into city.
42	Albany, N. Y.....	Gravity and pumping to Reservoir.
43	Grand Rapids, Mich.	Pumping to Reservoir and to stand-pipe.
44	Seattle, Wash.....	Gravity.
46	Hartford, Conn....	Gravity.
47	Richmond, Va.....	Pumping to 2 Reservoirs.
48	Reading, Pa.....	Gravity and Pumping.
49	Nashville, Tenn...	Pumping to Reservoirs.
50	Wilmington, Del..	Pumping.
51	Lynn, Mass.....	Pumping to Reservoir.
56	New Bedford, Mass.	Pumping to Reservoir.
58	Somerville, Mass..	Supplied by Metropolitan System from the Nashua River.
59	Lawrence, Mass...	Pumping to storage reservoir and standpipe.
60	Springfield, Mass..	Gravity.
61	Savannah, Ga.....	Pumping direct.
63	Evansville, Ind....	Pumping direct.
66	Manchester, N. H.	Pumping.
67	Erie, Pa.....	Pumping to Reservoirs.
75	Harrisburg, Pa....	" " "
79	Yonkers, N. Y....	L. S. Pumping to Reservoirs. H. S. Pumping to standpipes, tank and direct.
80	Holyoke, Mass....	Gravity.
85	Fort Wayne, Ind..	Pumping to Reservoir.
86	Dallas, Tex.....	Pumping to Reservoirs, thence pumping direct.
92	Brockton, Mass...	Pumping to Standpipe.
94	Newton, Mass.....	Pumping.
122	Chelsea, Mass.....	Gravity.
126	Fitchburg, Mass...	Gravity.
127	Taunton, Mass....	Pumping to reservoir, gravity and pumping direct.
132	Sacramento, Cal..	Pumping direct.
147	Newport, Ky.....	Pumping to Reservoir.
150	San Francisco, Cal.	Gravity and pumping to Reservoirs.

Number in Bul. No. 20, U. S. Census 1903.	CITY.	PHYSICAL RECORD FOR THE YEAR.			
		CAPACITY			
		Of Impounding Reservoirs. Gallons.	Of Distributing Reservoirs. Gallons.	Of Works Gallons per Day.	Miles of Mains.
A	1.	10.	11.	12.	13.
		Orig.	Orig.	Orig.	Orig.
1	Chicago, Ill.....	None.	None.	528,000,000	1,939.8
2	Philadelphia, Pa...	do.	1,606,590,000	561,540,000	1,445.7
3	St. Louis, Mo.....	do.	60,000,000	160,000,000	729.1
4	Boston, Mass.....				732.
5	Baltimore, Md.....	910,000,000	336,550,000	177,000,000	611.
6	Cleveland, O.....	None.	113,907,000	85,000,000	594.
7	Buffalo, N. Y.....	"	116,213,827	187,000,000	504.
8	Pittsburg, Pa.....	"	252,900,000	98,000,000	361.
10	Cincinnati, O.....	"	106,000,000	90,000,000	448.9
11	Milwaukee, Wis...	"	21,500,000	46,000,000	380.6
12	Detroit, Mich.....	"	None.	152,000,000	644.3
13	Washington, D. C.	"	640,000,000	90,000,000	425.4
14	Louisville, Ky.....	"			263.8
15	Minneapolis, Minn.	"	67,000,000		286.6
16	Providence, R. I...	"	152,000,000	30,000,000	341.0
17	Kansas City, Mo...			47,000,000	249.0
18	Rochester, N. Y...	63,500,000	23,500,000	23,000,000	299.4
				+ 6,000,000	
30	Los Angeles, Cal..	None.	78,000,000		500.
31	Fall River, Mass...	"	3,924,781	18,000,000	94.8
32	Memphis, Tenn....	"	None.	20,000,000	150.
33	Lowell, Mass.....	"	31,500,000	12,000,000	132.6
34	Portland, Ore.....	"	66,000,000	24,000,000	207.
35	Cambridge, Mass..	2,200,000,000	43,000,000	10,000,000	125.4
36	Atlanta, Ga.....	None.	176,000,000	35,000,000	147.
37	Albany, N. Y.....			20,000,000	133.
38	Grand Rapids, Mich.	None.	5,300,000	30,000,000	153.2
39	Seattle, Wash.....		51,399,653	22,000,000	215.
40	Hartford, Conn....	1,889,890,971	145,985,543	7,500,000	135.8
41	Richmond, Va.....	None.	56,000,000	24,000,000	105.9
42	Reading, Pa.....	149,990,000	36,032,000	15,392,000	105.2
43	Nashville, Tenn...	None.	51,000,000	30,000,000	85.3
44	Wilmington, Del..	"	40,000,000	16,000,000	112.5
45	Lynn, Mass.....	1,461,265,193	20,000,000	19,000,000	135.
46	New Bedford, Mass.	5,000,000,000	82,000,000	15,000,000	100.1
47	Somerville, Mass..				88.4
48	Lawrence, Mass...	None.	40,538,000	5,000,000	83.7
49	Springfield, Mass..	1,434,218,000	53,140,000	11,700,000	150.4
50	Savannah, Ga.....			20,000,000	62.9
51	Evansville, Ind....	None.	None.	30,000,000	80.
52	Manchester, N. H.	Area of Lake 2500 Acres	19,000,000	10,000,000	103.4
53	Erie, Pa.....	None.	36,000,000	25,000,000	115.3
54	Harrisburg, Pa....	"	20,000,000	12,000,000	49.3
55	Yonkers, N. Y.....	450,000,000	64,815,000	15,000,000	91.2
56	Holyoke, Mass....	1,600,000,000	None.	8,500,000	85.4
57	Fort Wayne, Ind...	None.	3,000,000	15,000,000	90.
58	Dallas, Tex.....	800,000,000	133,000,000	19,000,000	91.
59	Brockton, Mass...	300,000,000	1,300,000	8,000,000	85.8
60	Newton, Mass.....	None.	4,500,000	2,500,000	139.3
61	Chelsea, Mass.....				38.6
62	Fitchburg, Mass...	2,239,000,000	61,400,000	7,000,000	69.1
63	Taunton, Mass....			15,000,000	80.6
64	Sacramento, Cal..	None.	None.	20,000,000	55.
65	Newport, Ky.....	"	60,000,000	4,000,000	31.7
9	San Francisco, Cal.	28,000,000,000	93,100,000	35,000,000	424.3

Number in Bul. No. 20, U. S. Census 1903.	CITY.	PHYSICAL RECORD FOR THE YEAR.				
		DISTRIBUTION				
		No. of Taps.	No. of Meters.	% of Taps Metered.	No. of Hydrants.	
					Public.	Private.
A	1.	14.	15.	16.	17.	18.
1		Orig.	Orig.	15	Orig.	Orig.
2	Chicago, Ill.....	227,298	7,298	3.11	19,922	
3	Philadelphia, Pa...	249,980	1,775	0.71	13,647	
4	St. Louis, Mo.....	74,505	4,751	6.3	8,334	104
5	Boston, Mass.....	90,013	5,315	5.9	7,563	294
6	Baltimore, Md....	103,000	2,228	2.2	2,311	
7	Cleveland, O.....	58,852	25,030	42.5	6,858	
8	Buffalo, N. Y.....	68,208	1,515	2.2	4,720	
10	Pittsburg, Pa.....	40,000	2,400	6.	6,812	
11	Cincinnati, O.....	37,942	3,982	10.5	3,075	
12	Milwaukee, Wis...	47,481	36,415	76.7	2,664	
13	Detroit, Mich.....	66,226	5,957	9.0	4,100	
15	Washington, D. C.	53,000	2,500	4.7	2,200	
18	Louisville, Ky.....	25,032	1,994	8.0	554	
19	Minneapolis, Minn.	23,276	9,225	25.3	3,412	
21	Providence, R. I...	23,332	19,838	85.0	2,081	
22	Kansas City, Mo...	22,508	8,391	37.3	2,664	
24	Rochester, N. Y...	36,426	11,201	32.5	3,007	42
30	Los Angeles, Cal...	39,558	3,485	8.8	861	
33	Fall River, Mass...	7,502	7,211	96.1	1,060	
34	Memphis, Tenn....	13,000	2,000	15.	938	
39	Lowell, Mass.....	11,119	7,273	65.4	1,125	74
40	Portland, Ore.....	20,473	913	4.5	830	
41	Cambridge, Mass...	14,692	2,326	15.8	1,005	
42	Atlanta, Ga.....	11,652	11,652	100.	1,425	
43	Albany, N. Y.....	17,816	2,632	14.8	849	
44	Grand Rapids, Mich.	12,260	3,264	26.7	1,424	
46	Seattle, Wash.....	11,293	1,213	10.7	1,217	
47	Hartford, Conn....	10,239	9,604	93.8	999	
48	Richmond, Va.....	16,200	6,201	38.3	717	
49	Reading, Pa.....	18,104	1,137	6.3	840	
50	Nashville, Tenn....	8,884	4,033	47.3	713	31
51	Wilmington, Del...	15,034	2,123	14.1	833	
56	Lynn, Mass.....	12,998	3,538		965	
58	New Bedford, Mass.	9,927	1,954	19.7	778	220
59	Somerville, Mass...	10,854	647	6.0	973	45
60	Lawrence, Mass...	6,483	5,603	86.5	604	
61	Springfield, Mass..	10,471	3,798	36.3	1,000	96
63	Savannah, Ga.....		53		623	
66	Evansville, Ind....	6,220	0	0.	600	
67	Manchester, N. H.	5,839	4,001	68.5	778	
75	Erie, Pa.....	12,823	301	2.3	698	
79	Harrisburg, Pa....	12,803	5,587	43.6	672	
80	Yonkers, N. Y.....	5,675	5,826		937	
85	Holyoke, Mass....	3,719	247	6.6	577	198
86	Fort Wayne, Ind...	10,000	2,700	27.	706	
92	Dallas, Tex.....	7,500	0.0	0.0	592	
94	Brockton, Mass...	5,489	5,299	96.5	752	
122	Newton, Mass.....	7,404	6,367	85.6	966	
126	Chelsea, Mass.....	6,312	128	2.0	298	
127	Fitchburg, Mass...	4,693	2,712	57.8	529	
132	Taunton, Mass....	4,753	2,134	44.9	813	
147	Sacramento, Cal...	6,500	0	0.	450	
150	Newport, Ky.....	5,329	868	16.3	257	
9	San Francisco, Cal.	49,249	10,000	20.3	4,078	

Number in Bul. No. 20, U. S. Census 1903.	CITY.	PHYSICAL RECORD FOR THE YEAR.			
		Hydrants per Mile of Main.	Pressure in lbs. per sq. in.		Total Consumption for the Year. Gallons.
			Ordinary.	Fire.	
A	1.	19.	20.	21.	22.
1		17+18	Orig.	Orig.	Orig.
2	Chicago, Ill.....	10.3			137,515,751,956
3	Philadelphia, Pa...	9.4	25-150		119,456,525,979
4	St. Louis, Mo.....	11.6	15-125		25,592,568,300
5	Boston, Mass.....	10.7	25-95		29,382,500,000
6	Baltimore, Md.....	3.6	25-120		22,884,567,412
7	Cleveland, O.....	11.6	20-90		21,502,193,000
8	Buffalo, N. Y.....	9.4	75		46,625,707,656
10	Pittsburg, Pa.....	18.9	65		24,674,000,000
11	Cincinnati, O.....	6.9	10-190		16,585,477,730
12	Milwaukee, Wis...	7.0	20-55		9,589,430,500
13	Detroit, Mich.....	6.4	10-70		21,734,954,234
15	Washington, D. C.	5.2	25-100		25,700,000,000
18	Louisville, Ky.....	2.1			6,460,519,243
19	Minneapolis, Minn.	11.9	26-30		7,467,840,050
21	Providence, R. I...	6.0	64-73	114	4,786,834,205
22	Kansas City, Mo...	10.7			5,514,519,157
24	Rochester, N. Y...	10.2	30-95	65-140	5,618,884,175
30	Los Angeles, Cal...	1.7			9,882,000,000
33	Fall River, Mass...	11.2	80		1,561,339,664
34	Memphis, Tenn....	6.3	60		4,421,805,000
39	Lowell, Mass.....	9.0			1,922,390,231
40	Portland, Ore.....	4.0	50-90		8,760,000,000
41	Cambridge, Mass..		45-55		See remarks.
42	Atlanta, Ga.....	9.7	40-120		3,160,704,360
43	Albany, N. Y.....	6.4	15-80		2,484,954,300
44	Grand Rapids, Mich.	9.3	40-68		6,982,556,698
46	Seattle, Wash.....	5.7	25-125		5,157,839,930
47	Hartford, Conn....	7.4	35-87		4,745,000,000
48	Richmond, Va.....	6.8	18-75		2,547,144,470
49	Reading, Pa.....	8.0	10-133		4,322,120,140
50	Nashville, Tenn...	8.7	20-100		3,778,588,178
51	Wilmington, Del...	7.4	15-70		4,531,434,667
56	Lynn, Mass.....	7.1	40-60		2,858,164,000
58	New Bedford, Mass.	10.0	25-95		1,875,197,646
59	Somerville, Mass..	11.0	35-100		2,535,280,580
60	Lawrence, Mass...	7.2	65-125		1,220,650,000
61	Springfield, Mass..	7.3	30-45		1,031,294,471
63	Savannah, Ga.....		100-120		4,270,500,000
66	Evansville, Ind....	7.5	45-60		See remarks.
67	Manchester, N. H.	7.5	50	100	3,113,372,289
75	Erie, Pa.....	6.1	40-110		2,920,000,000
79	Harrisburg, Pa.....	13.6	60		1,126,625,894
80	Yonkers, N. Y....	10.3	30-80		3,315,335,518
85	Holyoke, Mass....	9.1	45-120		2,938,854,675
86	Fort Wayne, Ind...	7.8	40-100		1,743,770,168
92	Dallas, Tex.....	6.5	70-75		1,837,188,080
94	Brockton, Mass...	8.8	6-75		1,569,509,620
122	Newton, Mass.....	6.9	80-86		2,079,901,190
126	Chelsea, Mass.....	7.7	50-75		539,199,314
127	Fitchburg, Mass...	7.7	155		769,809,852
132	Taunton, Mass....	10.1	75		1,277,500,000
147	Sacramento, Cal..	8.2	Range		1,006,000,000
150	Newport, Ky.....	8.1	19-45		554,664,539
9	San Francisco, Cal.	9.6	40-60		3,018,228,000
			85		657,826,000
			10-138		11,971,311,000

Number in Bul. No. 20, U. S. Census 1903.	CITY.	PHYSICAL RECORD FOR THE YEAR.		
		Total Pumpage for the Year. Gallons.	Per cent of Con- sumption Pumped.	Pump Capacity. Gallons Daily.
A	1.	23.	24.	25.
		Orig.	23	Orig.
			22	
1				
2	Chicago, Ill.....	137,515,751,956	100.	528,000,000
3	Philadelphia, Pa...	124,015,934,669	100.1	501,540,000
4	St. Louis, Mo.....	29,562,451,175	115.5	
5	Boston, Mass.....	Metropolitan System delivers into city's mains.		
6	Baltimore, Md.....	10,274,842,949	44.9	63,000,000
7	Cleveland, O.....	21,502,193,000	100.	140,000,000
8	Buffalo, N. Y.....	46,625,707,656	100.	187,000,000
10	Pittsburg, Pa.....	24,693,870,740	99.92	
11	Cincinnati, O.....	16,730,217,710	101.	
12	Milwaukee, Wis....	9,589,430,500	100.	46,000,000
13	Detroit, Mich.....	21,734,954,234	100.	152,000,000
15	Washington, D. C.			72,000,000
18	Louisville, Ky.....	6,460,519,243	100.	
19	Minneapolis, Minn.	7,467,840,050	100.	67,000,000
21	Providence, R. I...	5,403,226,814	113.	
22	Kansas City, Mo...	5,514,519,157	100.	108,000,000
24	Rochester, N. Y...	637,321,000	11.3	6,000,000
30	Los Angeles, Cal..	Unknown.		25,000,000
33	Fall River, Mass..	1,561,339,664	100.	18,000,000
34	Memphis, Tenn....	4,421,805,000	100.	30,000,000
39	Lowell, Mass.....	1,923,370,860	100.06	41,500,000
40	Portland, Ore.....	None.	0.0	None.
41	Cambridge, Mass..	3,160,704,360	100.	
42	Atlanta, Ga.....	3,339,711,400	134.5	73,000,000
43	Albany, N. Y.....	4,710,662,880	67.5	25,000,000
44	Grand Rapids, Mich.	5,157,839,930	98.3	28,000,000
46	Seattle, Wash.....	404,000,000	5.0	
47	Hartford, Conn....	None.	0.0	None.
48	Richmond, Va.....	4,322,120,140	100.	
49	Reading, Pa.....	1,396,385,444	37.	15,000,000
		Slip not allowed for		
50	Nashville, Tenn...	4,531,434,667	100.	
51	Wilmington, Del..	2,858,164,000	100.	16,000,000
56	Lynn, Mass.....	1,873,992,750	99.9	19,000,000
58	New Bedford, Mass.	2,525,860,944	99.6	33,000,000
59	Somerville, Mass..	Metropolitan System delivers into city's mains.		
60	Lawrence, Mass...	1,034,294,471	100.	12,000,000
61	Springfield, Mass.	None.	0.0	None.
63	Savannah, Ga.....	3,113,372,289	100.	
66	Evansville, Ind....	2,920,000,000	100.	30,000,000
67	Manchester, N. H.	1,126,625,894	100.	
75	Erie, Pa.....	3,315,335,518	100.	
79	Harrisburg, Pa....	2,938,854,675	100.	
80	Yonkers, N. Y.....	1,743,770,168	100.	15,000,000
85	Holyoke, Mass....	None.	0.0	None.
86	Fort Wayne, Ind...	1,569,509,620	100.	
92	Dallas, Tex.....	2,467,475,856	118.6	19,000,000
94	Brockton, Mass...	539,199,314	100.	8,000,000
122	Newton, Mass.....	770,124,560	100.04	5,000,000
		Slip not allowed for		
126	Chelsea, Mass....	None.	0.0	None.
127	Fitchburg, Mass...	"	0.0	"
132	Taunton, Mass....	554,664,539	100.	15,000,000
147	Sacramento, Cal..	3,018,228,000	100.	
150	Newport, Ky.....	661,826,000	100.6	4,000,000
9	San Francisco, Cal.			70,000,000

Number in Bul. No. 20, U. S. Census 1903.	CITY.	PHYSICAL RECORD FOR THE YEAR.			
		Average Head Against Which Pumps Work Feet.		Total Gallons Metered During the Year.	Per cent of Con- sumption Metered.
		Static.	Dynamic.		
A	1.	26.	27.	28.	29.
		Orig.	Orig.	Orig.	28
1	Chicago, Ill.....	03.8		1,600,000,000	1.16
2	Philadelphia, Pa...	135	205	5,500,000,000	4.6
3	St. Louis, Mo.....	230	240	6,000,000,000	23.4
4		290	295		
5	Boston, Mass.....			6,748,022,160	23.8
6	Baltimore, Md.....			5,474,298,892	23.9
7	Cleveland, O.....	173	196	7,998,778,320	37.2
		325	417		
8	Buffalo, N. Y.....	175	187	6,871,027,500	14.7
10	Pittsburg, Pa.....	340			
11	Cincinnati, O.....		172-462	3,489,452,250	21.
12	Milwaukee, Wis....	150	159	4,453,042,836	46.4
13	Detroit, Mich.....		115	5,517,636,760	25.4
15	Washington, D. C.	70		2,799,070,000	10.9
		150			
		300			
18	Louisville, Ky.....	141-194			
19	Minneapolis, Minn.	70-208	204-235	1,844,069,125	24.7
21	Providence, R. I...	171	177	Estimated 60% of total	
22	Kansas City, Mo...	327		2,890,302,251	52.4
24	Rochester, N. Y...		160	1,832,085,000	34.6
			300		
30	Los Angeles, Cal..	236	250		
33	Fall River, Mass...	186		823,099,275	52.7
34	Memphis, Tenn....			705,000,000	16.
39	Lowell, Mass.....	157	164	881,000,000	45.8
40	Portland, Ore.....				
41	Cambridge, Mass...	158	194	1,074,317,752	29.4
42	Atlanta, Ga.....	254			
43	Albany, N. Y.....	18	18	Unknown.	
		241	264		
		296	321		
44	Grand Rapids, Mich.	20.5		733,307,400	14.0
		146			
46	Seattle, Wash.....	204			
47	Hartford, Conn....				
48	Richmond, Va.....	165		Unknown.	
49	Reading, Pa.....	213	258	1,256,943,346	33.2
50	Nashville, Tenn...	308	359	958,717,300	21.2
51	Wilmington, Del..	132	142	1,414,717,000	49.5
		105	117		
56	Lynn, Mass.....	149	150	490,000,000	26.1
58	New Bedford, Mass.	167	188	772,887,000	30.5
59	Somerville, Mass...			426,055,257	20.1
60	Lawrence, Mass...	294	322	600,979,500	
		152	185		
61	Springfield, Mass..			549,780,743	12.9
63	Savannah, Ga.....		115		
66	Evansville, Ind....			None.	0.0
67	Manchester, N. H.	115			
		275			
75	Erie, Pa.....	273		762,844,694	23.0
		236			
79	Harrisburg, Pa....	188	210		
80	Yonkers, N. Y....	L. S. 185		971,883,226	55.7
85	Holyoke, Mass....			470,267,250	25.6
86	Fort Wayne, Ind...			240,000,000	15.3
92	Dallas, Tex.....	200		None.	0.0
94	Brockton, Mass...	40	43	299,205,468	55.5
122	Newton, Mass.....	234	257	484,000,000	62.9
126	Chelsea, Mass....			199,165,530	15.6
127	Fitchburg, Mass...			Unknown.	
132	Taunton, Mass....		69	262,995,415	47.4
147	Sacramento, Cal..		94-138	None.	0.0
150	Newport, Ky.....	334		203,071,000	30.6
9	San Francisco, Cal.				

Number in Bul. No. 20, U. S. Census 1903.	CITY.	PHYSICAL RECORD FOR THE YEAR.			
		Total Gallons Fil- tered During the Year.	Per cent of Con- sumption Filtered.	Average Daily Consumption. Gallons.	Daily Consumption per Capita. Gallons.
A	1.	30.	31.	32.	33.
		Orig.	30 22	Orig. or 22 No. days in year.	32
1					4
2	Chicago, Ill.....	None.	0.0	376,755,485	197
3	Philadelphia, Pa...	4,379,441,000	3.7	327,278,511	238
4	St. Louis, Mo.....	29,562,451,175	115.5	69,925,000	101
5	Boston, Mass.....			80,500,000	135
6	Baltimore, Md....	None.	0.0	62,697,445	118
7	Cleveland, O.....	"	0.0	58,910,000	134
8	Buffalo, N. Y.....	"	0.0	127,741,660	319
10	Pittsburg, Pa.....			67,600,000	180
11	Cincinnati, O.....	None.	0.0	45,677,958	130
12	Milwaukee, Wis....			26,272,412	80
13	Detroit, Mich.....	None.	0.0	59,385,121	155
15	Washington, D. C.	25,700,000,000	100.	65,000,000	203
18	Louisville, Ky.....			17,700,053	73
19	Minneapolis, Minn.	None.	0.0	20,459,835	91
21	Providence, R. I..		0.0	13,114,614	65
22	Kansas City, Mo..	"	0.0	15,108,271	67
24	Rochester, N. Y...			15,394,118	90
30	Los Angeles, Cal..	"	0.0	27,000,000	142
33	Fall River, Mass..		0.0	4,277,643	38
34	Memphis, Tenn....		0.0	12,081,000	81
39	Lowell, Mass.....			5,266,823	51
40	Portland, Ore.....	"	0.0	24,000,000	192
				See Remarks.	
41	Cambridge, Mass..	"	0.0	8,659,463	90
42	Atlanta, Ga.....	2,484,954,300	100.	6,808,094	57
43	Albany, N. Y.....	4,653,907,252	66.7	19,130,292	191
44	Grand Rapids, Mich.			14,327,333	
46	Seattle, Wash.....	None.	0.0	13,000,000	93
47	Hartford, Conn....	"	0.0	6,959,411	73
48	Richmond, Va.....	"	0.0	11,841,435	118
49	Reading, Pa.....	82,958,213	2.2	10,324,000	120
50	Nashville, Tenn...	None.	0.0	12,414,889	138
51	Wilmington, Del..	"	0.0	7,830,586	95
56	Lynn, Mass.....	"	0.0	5,137,527	63
58	New Bedford, Mass.	"	0.0	6,945,974	96
59	Somerville, Mass..	"	0.0	5,810,000	87
60	Lawrence, Mass...	1,034,294,471	100.	2,833,683	40
61	Springfield, Mass..	None.	0.0	11,700,000	176
63	Savannah, Ga.....			8,546,225	
66	Evansville, Ind....	None.	0.0	8,000,000	123
67	Manchester, N. H.	"	0.0	3,086,646	51
75	Erie, Pa.....	"	0.0	9,083,110	161
79	Harrisburg, Pa....	"	0.0	8,051,656	129
80	Yonkers, N. Y....	"	0.0	4,777,452	85
85	Holyoke, Mass....	"	0.0	5,033,392	103
86	Fort Wayne, Ind...	"	0.0	4,650,114	72
92	Dallas, Tex.....	"	0.0	5,698,359	74
94	Brockton, Mass...	"	0.0	1,477,258	32
122	Newton, Mass.....	"	0.0	2,109,068	56
126	Chelsea, Mass.....			3,500,000	97
127	Fitchburg, Mass...		0.0	2,750,000	81
132	Taunton, Mass....		0.0	1,519,629	49
147	Sacramento, Cal..		0.0	8,226,117	249
150	Newport, Ky.....		0.0	1,801,000	35
9	San Francisco, Cal.			32,708,500	88

Number in Bul. No. 20, U. S. Census 1903.	CITY.	PHYSICAL RECORD FOR THE YEAR.					
		Daily Consumption per Consumer. Gallons.	Daily Consumption per Tap Gallons.	Population per Mile of Main.	Consumers per Mile of Main.	Population per Tap	Consumers per Tap
A	1.	34.	35.	36.	37.	38.	39.
		32	32	5	6	5	6
1		6	14	13	13	14	14
2	Chicago, Ill.....	197	1,658	983.5	983.5	8.4	8.4
3	Philadelphia, Pa...	239	1,309	947	947	5.5	5.5
4	St. Louis, Mo.....	140	939		686		6.7
5	Boston, Mass.....	135	894	817	817	6.6	6.6
6	Baltimore, Md....	118	609	867	867	5.1	5.1
7	Cleveland, O.....	138	1,001	732	721	7.4	7.3
8	Buffalo, N. Y.....	319	1,873	794	794	5.9	5.9
10	Pittsburg, Pa.....	180	1,690	1,039	1,039	9.4	9.4
11	Cincinnati, O.....	136	1,204	746	746	8.8	8.8
12	Milwaukee, Wis....	87	553	828	828	6.6	6.6
13	Detroit, Mich.....	179	897		516		5.0
15	Washington, D. C.	203	1,226	753	753	6.0	6.0
18	Louisville, Ky.....	103	707	697	652	7.4	6.9
19	Minneapolis, Minn.	132	879	610	541	7.5	6.7
21	Providence, R. I...	65	562	594	594	8.7	8.7
22	Kansas City, Mo...	67	671	904	904	10.0	10.0
24	Rochester, N. Y...	90	476	571	571	4.7	4.7
30	Los Angeles, Cal...	144	683	376	376	4.8	4.8
33	Fall River, Mass...	38	570	1,198	1,191	15.2	15.0
34	Memphis, Tenn....	101	929	800	800	9.2	9.2
39	Lowell, Mass.....	51	474	782	782	9.4	9.4
40	Portland, Ore.....	200	1,172	580	580	5.9	5.9
41	Cambridge, Mass...	90	589	771	771	6.6	6.6
42	Atlanta, Ga.....	91	584	544	510	6.9	6.4
43	Albany, N. Y.....	191	1,074	752	752	6.4	6.4
44	Grand Rapids, Mich.	239	1,132	490	392	5.9	4.7
46	Seattle, Wash.....	113	1,151	546	535	10.4	10.2
47	Hartford, Conn....	76	680	674	674	8.9	8.9
48	Richmond, Va.....	118	731	944	944	6.2	6.2
49	Reading, Pa.....	120	570	819	820	4.8	4.8
50	Nashville, Tenn...	253	1,397	703	574	6.8	5.5
51	Wilmington, Del...	95	521	729	729	7.4	7.4
56	Lynn, Mass.....	64	365	593	593	6.2	6.2
58	New Bedford, Mass.	112	700	629	619	6.3	6.2
59	Somerville, Mass...	87	535	758	758	6.2	6.2
60	Lawrence, Mass...	43	437	836	794	10.8	10.3
61	Springfield, Mass..	216	1,117	399	379	5.7	5.2
63	Savannah, Ga.....	114			1,190		
66	Evansville, Ind....	267	1,286	625	375	8.0	4.8
67	Manchester, N. H.	56	528	532	532	9.4	9.4
75	Erie, Pa.....	216	708	364	364	3.3	3.3
79	Harrisburg, Pa....	134	629	1,258	1,216	4.8	4.7
80	Yonkers, N. Y....	87	842	603	603	9.7	9.7
85	Holyoke, Mass.....	104	1,353	570	567	13.1	13.0
86	Fort Wayne, Ind...	93	465	611	555	5.5	5.0
92	Dallas, Tex.....	121	760	604	516	7.3	6.3
94	Brockton, Mass...	37	253	530	466	7.5	7.0
122	Newton, Mass.....	57	290	265	263	5.0	5.0
126	Chelsea, Mass.....	97	554	933	933	7.7	7.7
127	Fitchburg, Mass...	95	560		420		6.2
132	Taunton, Mass....	57	320	347	339	5.9	5.8
147	Sacramento, Cal...	249	1,265	600	600	5.1	5.1
150	Newport, Ky.....	37	344	1,546	1,546	9.4	9.4
9	San Francisco, Cal.	88	664	879	879	7.6	7.6

Number in Bul. No. 20, U. S. Census 1903.	CITY.	FINANCIAL RECORD FOR THE YEAR.		
		Total Cost of Works to Date.	Total Cost by U. S. Census 1903 (Bulletin 20 p. 104).	Bonded Debt.
		40.	41.	42.
A	1.	Orig.	Orig.	Orig.
1		\$	\$	\$
2	Chicago, Ill.....	37,354,923.50	37,354,923.00	3,643,000.00
3	Philadelphia, Pa....	37,020,838.00	48,320,824.00	19,159,300.00
4	St. Louis, Mo.....	22,600,000.00	22,789,980.00	5,800,000.00
5	Boston, Mass.....	45,307,182.00		37,739,805.00
6	Baltimore, Md.....	12,777,875.48	12,921,875.00	9,500,000.00
7	Cleveland, O.....	12,732,195.91	12,732,195.00	3,555,000.00
8	Buffalo, N. Y.....	10,000,000.00	9,543,107.00	3,872,882.00
	Estimate.			
10	Pittsburg, Pa.....	10,000,000.00	7,904,913.00	
11	Cincinnati, O.....	14,488,000.00	14,500,000.00	4,747,700.00
12	Milwaukee, Wis....	5,311,722.54	5,333,239.00	482,000.00
13	Detroit, Mich.....	7,143,934.83	7,344,456.00	1,283,000.00
15	Washington, D. C.			
18	Louisville, Ky.....	6,583,331.20	6,593,370.00	1,400,000.00
19	Minneapolis, Minn.	5,083,529.70	5,083,530.00	1,930,000.00
				See Remark.
21	Providence, R. I..	6,569,925.22	6,569,925.00	6,009,000.00
22	Kansas City, Mo..	4,116,427.80	4,384,768.00	3,375,000.00
24	Rochester, N. Y..	7,822,355.23	7,641,912.00	5,610,000.00
	M 1904		M 1903	
30	Los Angeles, Cal..	3,415,204.21	2,623,500.00	2,360,751.00
33	Fall River, Mass..	2,010,354.46	2,010,354.00	2,080,000.00
34	Memphis, Tenn....	2,580,172.98	488,801.00	2,700,000.00
39	Lowell, Mass.....	2,980,238.00	2,980,238.00	1,075,000.00
40	Portland, Ore.....	4,457,598.65	4,457,598.00	3,150,000.00
41	Cambridge, Mass..	5,750,655.15	5,750,655.00	3,350,600.00
42	Atlanta, Ga.....	2,274,364.08	3,657,134.00	1,228,000.00
43	Albany, N. Y.....	3,550,828.00	3,550,828.00	1,371,700.00
44	Grand Rapids, Mich.	1,564,658.74	1,564,659.00	1,025,000.00
46	Seattle, Wash.....	3,197,968.85	3,192,993.00	2,300,000.00
47	Hartford, Conn....	3,336,349.86	3,336,350.00	675,000.00
48	Richmond, Va.....	2,235,000.00	2,438,608.00	See Remark.
49	Reading, Pa.....	2,213,725.08	2,213,725.00	400,000.00
50	Nashville, Tenn....	2,512,985.90	2,074,504.00	1,485,000.00
51	Wilmington, Del..	1,700,000.00	2,000,000.00	138,000.00
56	Lynn, Mass.....	2,810,680.54	2,810,681.00	2,167,300.00
58	New Bedford, Mass.	3,231,340.41	3,231,341.00	1,668,000.00
59	Somerville, Mass..	2,313,688.43		1,632,640.00
60	Lawrence, Mass....	2,244,872.33	2,244,872.00	752,000.00
61	Springfield, Mass..	2,241,904.17	2,241,904.00	875,000.00
63	Savannah, Ga.....	1,106,422.00	1,106,422.00	None.
	See Remark.			
66	Evansville, Ind....	1,077,137.00	1,077,137.00	400,000.00
				See Remark.
67	Manchester, N. H.	1,722,700.41	1,722,700.00	800,000.00
75	Erie, Pa.....	1,917,019.05	1,917,020.00	500,000.00
				See Remark.
79	Harrisburg, Pa....	950,000.00	237,622.00	649,800.00
80	Yonkers, N. Y.....	1,779,310.12	1,778,195.00	1,660,000.00
85	Holyoke, Mass....	1,384,319.83	1,399,666.00	350,000.00
86	Fort Wayne, Ind..	1,387,405.81	872,655.00	285,000.00
92	Dallas, Tex.....	1,500,000.00	1,500,000.00	841,000.00
94	Brockton, Mass....	1,327,569.62	1,327,570.00	1,225,000.00
122	Newton, Mass.....	2,151,974.16	2,151,974.00	2,185,000.00
126	Chelsea, Mass.....	1,268,335.59		1,078,910.00
127	Fitchburg, Mass....	1,094,793.00	1,094,793.00	512,000.00
132	Taunton, Mass....	1,307,884.77	1,307,885.00	839,200.00
147	Sacramento, Cal..	498,500.00	498,500.00	146,000.00
	See Remark			
150	Newport, Ky.....	846,000.00	801,612.00	636,000.00
				See Remark.
		See little note.		
9	San Francisco, Cal.	24,124,389.00		
9	San Francisco, Cal.	24,124,389.00		

FINANCIAL RECORD FOR THE YEAR.

Number in Bul. No. 20, U. S. Census 1903.	CITY.	Floating Debt.	Percentage of Cost of Works Upon Which Interest Is Being Paid.	Average Rate of Interest (%)	Present Value of Sinking Fund.
A	1.	43.	44.	45.	46.
		Orig.	42 + 43 40	Orig.	Orig.
1		\$			\$
2	Chicago, Ill.....	1,221,774.79	9.75	4.	
3	Philadelphia, Pa...	None.	51.8	3.5	See Remark.
4	St. Louis, Mo.....		25.7	3.5 to 4.0	300,000.00
5	Boston, Mass.....	None.	83.4	3.58	9,664,834.31
6	Baltimore, Md.....		74.3	4.0	2,605,748.32
7	Cleveland, O.....	None.	27.9	4.	None.
8	Buffalo, N. Y.....	"	38.7	3.5	"
10	Pittsburg, Pa.....				
11	Cincinnati, O.....	"	32.7	4.2	223,946.06
12	Milwaukee, Wis...		9.1	4.43	81,250.00
13	Detroit, Mich.....	"	18.	4.98	74,415.24
15	Washington, D. C.				
18	Louisville, Ky.....	271,000.00	25.5	4.76	704,783.69
19	Minneapolis, Minn.		38.0	3.99	See Remark.
21	Providence, R. I...	93,000.00	92.9	3.75	1,562,158.44
22	Kansas City, Mo...	None.	82.0	4.25	278,000.00
24	Rochester, N. Y...		71.7	3.78	205,000.00
30	Los Angeles, Cal...		71.2	3.75	
33	Fall River, Mass...		103.5	4.7	768,669.29
34	Memphis, Tenn....		104.6	4.5	50,000.00
39	Lowell, Mass.....	108,900.00	40.5	4.	373,505.74
40	Portland, Ore.....	None.	70.6	5.08	None.
41	Cambridge, Mass...	"	58.3	3.8	1,062,841.46
42	Atlanta, Ga.....		54.0	4.92	See Remark.
43	Albany, N. Y.....		38.6	4.9	338.80
44	Grand Rapids, Mich.	"	65.5	4.25	None.
46	Seattle, Wash.....	"	71.9	5.	"
47	Hartford, Conn....	"	20.2	4.0	
48	Richmond, Va.....				See Remark.
49	Reading, Pa.....		18.1	4.	21,190.00
50	Nashville, Tenn...	None.	58.7	5.	17,194.00
51	Wilmington, Del...	"	8.1	5.	See Remark.
56	Lynn, Mass.....		77.1	4.	696,434.17
58	New Bedford, Mass.	None.	51.6	4.36	240,181.79
59	Somerville, Mass...	None.	70.6	3.40	119,027.28
60	Lawrence, Mass...		33.5	5.	48,620.56
61	Springfield, Mass.		39.0	4.27	119,657.44
63	Savannah, Ga.....	None.	0.0		None.
66	Evansville, Ind....	None.	37.1	6.0	See Remark.
67	Manchester, N. H.		46.4	4.19	146,645.45
75	Erie, Pa.....		16.0	4.	See Remark.
79	Harrisburg, Pa....	None.	68.4	3 to 6	105,931.00
80	Yonkers, N. Y.....		93.3	5.33	373,900.69
85	Holyoke, Mass.....	None.	25.3	3.93	64,477.39
86	Fort Wayne, Ind...	"	48.7	3.5	None.
92	Dallas, Tex.....	"	56.	4.	73,500.00
94	Brockton, Mass...	"	92.2	3.75	471,696.49
122	Newton, Mass.....	"	101.5	4.60	1,061,179.00
126	Chelsea, Mass.....	None.	85.2	3.67	138,610.01
127	Fitchburg, Mass...		46.8	4.38	124,569.52
132	Taunton, Mass.....		64.1	3.99	271,323.58
147	Sacramento, Cal...			4.	
150	Newport, Ky.....		75.2	3.85	See Remark.
9	San Francisco, Cal.				
9	San Francisco, Cal.				

Number in Bul. No. 20, U. S. Census 1903.	CITY.	FINANCIAL RECORD FOR THE YEAR.		
		REVENUE.		
		WATER RENTS.		
		Metered Consumers.	Un-metered Consumers.	Public Service.
A	1.	47.	48.	49.
		Orig.	Orig.	Orig.
1		\$	\$	\$
2	Chicago, Ill.....	1,406,989.98	2,279,512.24	
3	Philadelphia, Pa...	276,575.47	3,087,661.59	0.00
4	St. Louis, Mo.....	773,365.10	934,208.65	0.00
5	Boston, Mass.....	2,299,556.20		0.00
6	Baltimore, Md....	276,684.35	542,433.79	0.00
7	Cleveland, O.....	598,281.23	337,568.40	5,213.20
8	Buffalo, N. Y.....	153,620.55	494,990.38	76,892.46
10	Pittsburg, Pa.....			
11	Cincinnati, O.....	313,504.11	519,149.72	0.00
12	Milwaukee, Wis...	340,773.34	66,099.78	3,500.00
13	Detroit, Mich.....	155,266.06	277,126.46	0.00
15	Washington, D. C.	83,972.12	262,647.85	0.00
18	Louisville, Ky.....	170,234.71	250,757.18	3,768.89
19	Minneapolis, Minn.	244,157.08		0.00
21	Providence, R. I..	530,999.77	90,016.97	0.00
22	Kansas City, Mo..	316,906.48	199,270.17	0.00
24	Rochester, N. Y...	266,338.23	145,864.87	0.00
30	Los Angeles, Cal..	705,887.91		0.00
33	Fall River, Mass...	183,670.42	3,406.18	0.00
34	Memphis, Tenn....	140,215.07	167,039.46	58,182.39
39	Lowell, Mass.....	154,573.86	44,135.55	0.00
40	Portland, Ore.....	393,446.25		0.00
41	Cambridge, Mass..	148,410.55	188,535.85	0.00
42	Atlanta, Ga.....	174,750.58	0.00	0.00
43	Albany, N. Y.....	69,022.07	259,264.00	0.00
44	Grand Rapids, Mich.	48,887.16	69,846.97	8,400.00
46	Seattle, Wash.....	165,075.54	181,132.33	30,650.76
47	Hartford, Conn....	257,579.34		0.00
48	Richmond, Va.....	156,865.26		3,876.97
49	Reading, Pa.....	49,726.20	129,842.27	0.00
50	Nashville, Tenn...	123,681.54	48,258.59	0.00
51	Wilmington, Del..	78,001.43	116,004.32	0.00
56	Lynn, Mass.....	97,579.70	115,056.71	0.00
58	New Bedford, Mass.	42,202.26	81,922.00	12,000.00
59	Somerville, Mass..	61,164.59	162,033.00	0.00
60	Lawrence, Mass...	96,831.84	10,143.06	0.00
61	Springfield, Mass..	85,399.64	153,273.40	0.00
63	Savannah, Ga.....	98,862.02		0.00
66	Evansville, Ind....	0.00	78,221.07	0.00
67	Manchester, N. H.	85,954.05	21,793.54	19,200.00
75	Erie, Pa.....	94,519.15	114,542.39	0.00
79	Harrisburg, Pa....	123,253.66		0.00
80	Yonkers, N. Y.....	137,023.19		27,270.00
85	Holyoke, Mass....	24,642.34	80,411.54	4,616.00
86	Fort Wayne, Ind..	24,000.00	61,000.00	0.00
92	Dallas, Tex.....	0.00	112,000.00	35,000.00
94	Brockton, Mass...	86,577.70	3,115.65	4,000.00
122	Newton, Mass.....	120,350.00	2,894.00	5,324.00
126	Chelsea, Mass....	29,157.00	82,814.94	216.53
127	Fitchburg, Mass...	42,543.51	20,482.05	0.00
132	Taunton, Mass....	63,177.66		1,068.10
147	Sacramento, Cal..	0.00	115,002.90	0.00
150	Newport, Ky.....	18,971.73	31,499.86	0.00
9	San Francisco, Cal.	777,360.67	1,156,557.61	138,461.25
9	San Francisco, Cal.	722,945.43	1,082,534.38	138,461.25

FINANCIAL RECORD FOR THE YEAR.

Number in Bul. No. 20, U. S. Census 1903.	CITY.	REVENUE.		
		Received from Taxes.	Miscellaneous Meter and Service Con- nections, Rents, &c.	Total Ordinary Receipts.
A	1.	50.	51.	52.
		Orig.	Orig.	47+48+49 +50+51.
1		\$	\$	\$
2	Chicago, Ill.....		132,381.89	3,818,884.11
3	Philadelphia, Pa...	0.00	230,516.91	3,594,753.97
4	St. Louis, Mo.....	0.00	67,000.31	1,774,574.06
5	Boston, Mass.....	21,138.34	74,730.69	2,395,425.23
6	Baltimore, Md....	0.00	44,315.89	862,744.03
7	Cleveland, O.....	0.00	2,918.00	943,980.83
8	Buffalo, N. Y.....	0.00	33,192.50	758,695.89
10	Pittsburg, Pa.....			1,077,582.56
11	Cincinnati, O.....	0.00	43,109.86	875,763.69
12	Milwaukee, Wis...	39,780.56	30,655.12	480,808.85
13	Detroit, Mich.....	75,000.00	22,210.52	529,603.04
15	Washington, D. C.	0.00	53,880.03	400,000.00
18	Louisville, Ky.....	0.00	6,581.80	431,342.58
19	Minneapolis, Minn.	11,588.93	30,703.11	286,449.12
21	Providence, R. I...	0.00	0.00	621,016.74
22	Kansas City, Mo...	175,304.77	30,377.42	721,858.84
24	Rochester, N. Y...	4,802.32	39,358.83	456,364.25
30	Los Angeles, Cal...	0.00	67,090.41	772,978.32
33	Fall River, Mass...	39,877.00	9,204.13	236,157.69
34	Memphis, Tenn....	0.00	2,524.90	367,961.82
39	Lowell, Mass.....	0.00	14,734.38	213,443.79
40	Portland, Ore.....	0.00	0.00	393,446.25
41	Cambridge, Mass..	0.00	15,315.90	352,262.30
42	Atlanta, Ga.....	0.00	24,321.72	199,072.30
43	Albany, N. Y.....	0.00	2,892.69	331,178.76
44	Grand Rapids, Mich.	0.00	0.00	127,134.13
46	Seattle, Wash.....	0.00	0.00	376,853.63
47	Hartford, Conn....	0.00	8,765.30	266,344.64
48	Richmond, Va.....	0.00	1,378.05	162,120.28
49	Reading, Pa.....	0.00	9,040.64	188,609.11
50	Nashville, Tenn...	0.00	0.00	171,940.13
51	Wilmington, Del..	0.00	5,709.52	199,715.27
56	Lynn, Mass.....	0.00	9,654.08	222,290.49
58	New Bedford, Mass.	69,189.00	12,536.98	217,841.24
59	Somerville, Mass...	0.00	6,061.60	229,259.19
60	Lawrence, Mass...	0.00	9,876.61	116,851.51
61	Springfield, Mass..	0.00	22,052.76	260,725.89
63	Savannah, Ga.....	0.00	0.00	98,862.02
66	Evansville, Ind....	0.00	14,452.75	92,673.82
67	Manchester, N. H.	0.00	1,468.67	128,416.23
75	Erie, Pa.....	0.00	2,172.64	151,239.18
79	Harrisburg, Pa....	0.00	0.00	123,253.66
80	Yonkers, N. Y....	0.00	2,112.99	166,406.18
85	Holyoke, Mass....	0.00	1,844.14	111,514.02
86	Fort Wayne, Ind...	0.00	0.00	85,000.00
92	Dallas, Tex.....	0.00	0.00	147,000.00
94	Brockton, Mass...	0.00	10,388.94	104,082.29
122	Newton, Mass.....	0.00	4,950.40	133,518.40
126	Chelsea, Mass.....	0.00	1,993.71	114,182.18
127	Fitchburg, Mass...	13,594.37	5,833.03	82,452.96
132	Taunton, Mass....	0.00	5,212.17	69,457.93
147	Sacramento, Cal...	0.00	1,240.00	116,242.90
150	Newport, Ky.....	0.00	3,838.78	54,310.37
9	San Francisco, Cal.	0.00	115,057.21	2,187,436.74
9	San Francisco, Cal.	0.00	Not included.	1,943,941.06

Number in Bul. No. 20, U. S. Census 1903.	CITY.	FINANCIAL RECORD FOR THE YEAR.			
		REVENUE.			
		Extraordinary Receipts from Bonds and Similar Securities, &c.	Total Receipts During Year.	Cash Balance From Last Year.	Total Revenue from All Sources, Including Balance.
A	1.	53.	54.	55.	56.
		Orig.	52+53.	Orig.	54+55.
1		\$	\$	\$	\$
2	Chicago, Ill.....	276,633.62	4,095,517.73		
3	Philadelphia, Pa...	0.00	3,594,753.97		
4	St. Louis, Mo.....	0.00	1,774,574.06		
5	Boston, Mass.....	3,483,140.00	5,878,565.23		
6	Baltimore, Md....	0.00	862,744.03	4,492.15	867,236.18
7	Cleveland, O.....	270,350.41	1,214,331.27	394,041.21	1,608,372.48
8	Buffalo, N. Y.....	135,000.00	893,695.89		
10	Pittsburg, Pa.....				
11	Cincinnati, O.....	1,004,500.00	1,880,263.69	135,285.30	2,015,548.99
12	Milwaukee, Wis...	0.00	480,808.85	165.85	480,974.70
13	Detroit, Mich.....	350,000.00	879,603.04	2,781.19	882,384.23
15	Washington, D. C.	0.00	400,000.00		
18	Louisville, Ky.....	753,496.04	1,184,838.64	7,977.61	1,192,816.25
		Bills pay- able, etc.			
19	Minneapolis, Minn.	100,000.00	386,449.12	508,747.16	895,196.28
21	Providence, R. I...				
22	Kansas City, Mo...	517,145.00	1,239,003.84	351,802.14	1,590,805.98
24	Rochester, N. Y...	0.00	456,364.25	14,800.45	471,164.70
30	Los Angeles, Cal..	487,500.00	1,260,478.32	22,926.06	1,283,404.38
33	Fall River, Mass...	0.00	236,157.69	93,989.03	330,146.72
34	Memphis, Tenn....				
39	Lowell, Mass.....				
40	Portland, Ore.....				
41	Cambridge, Mass..	0.00	352,262.30		
42	Atlanta, Ga.....				
43	Albany, N. Y.....				
44	Grand Rapids, Mich.				
46	Seattle, Wash.....				
47	Hartford, Conn....	0.00	266,344.64	83,291.31	340,635.95
48	Richmond, Va.....				
49	Reading, Pa.....	0.00	188,600.11	43,938.42	232,547.53
50	Nashville, Tenn...				
51	Wilmington, Del..	0.00	199,715.27		
56	Lynn, Mass.....	238,945.27	461,235.76		
58	New Bedford, Mass.	3,178.40	220,019.64	20,584.46	241,604.10
59	Somerville, Mass...	82,720.00	310,979.19		
60	Lawrence, Mass...	0.00	116,851.51		
61	Springfield, Mass..	0.00	260,725.89		
63	Savannah, Ga.....	0.00	98,862.02		
66	Evansville, Ind....	0.00	92,673.82	25,892.72	118,566.54
67	Manchester, N. H.	0.00	128,416.23	168,845.41	235,261.64
75	Erie, Pa.....	0.00	151,239.18	45,855.87	197,095.03
79	Harrisburg, Pa....				
80	Yonkers, N. Y....	127,643.83	294,050.01		
85	Holyoke, Mass....	50,169.03	161,633.05	13,985.57	175,668.62
86	Fort Wayne, Ind..				
92	Dallas, Tex.....				
94	Brockton, Mass...	310,000.00	414,082.29	19,168.02	433,250.31
122	Newton, Mass.....	32,417.20	165,935.60		
126	Chelsea, Mass.....	42,680.00	156,862.18		
127	Fitchburg, Mass...	0.00	82,452.96		
132	Taunton, Mass....	10,000.00	79,457.93	1,961.50	81,419.43
147	Sacramento, Cal..				
150	Newport, Ky.....	0.00	54,310.37	472.91	54,783.28
9	San Francisco, Cal.				

FINANCIAL RECORD FOR THE YEAR.

EXPENDITURES.

EXPENSES.

CITY.

Interest.

Taxes.

Operating.

Maintenance.

Miscellaneous.

Number in Bul. No.
20, U. S. Census 1903.

A	1.	57.	58.	59.	60.	61.
		Orig.	Orig.	Orig.	Orig.	Orig.
1	Chicago, Ill.....	\$ 186,057.50	\$ 0.00	\$ 1,544,426.01	\$ 0.00	\$ 67,659.83
2	Philadelphia, Pa....	670,575.50	0.00	358,905.66	1,104,159.48	0.00
3	St. Louis, Mo.....	225,365.35	0.00	678,874.75	0.00	0.00
4	Boston, Mass.....	1,364,552.40	0.00	952,637.86	0.00	0.00
5	Baltimore, Md.....	380,000.00	0.00	421,296.03	0.00	0.00
6	Cleveland, O.....	131,300.00	0.00	214,021.58	46,071.37	17,629.60
7	Buffalo, N. Y.....	152,485.49	0.00	335,365.69	80,591.15	186.30
8	Pittsburg, Pa.....					
9	Cincinnati, O.....	124,077.00	0.00	532,055.44	126,081.35	0.00
10	Milwaukee, Wis....	21,330.00	0.00	182,028.18	0.00	0.00
11	Detroit, Mich.....	57,329.00	0.00	159,397.91	3,699.48	0.00
12	Washington, D. C.	0.00	0.00	180,000.00	0.00	0.00
13	Louisville, Ky.....	79,599.13	27,399.32	109,771.27	21,716.01	0.00
14	Minneapolis, Minn.	See remark.	0.00	134,996.55	0.00	37,681.14
						Ind. meters & services.
21	Providence, R. I..	228,438.00	0.00	130,199.63	0.00	0.00
22	Kansas City, Mo..	130,432.50	9,353.84	201,014.09	52,686.78	0.00
23	Rochester, N. Y...	220,282.01	0.00	115,860.92	0.00	0.00
24	Los Angeles, Cal..	89,640.00	71,350.00	105,317.87	7,262.06	452.35
25	Fall River, Mass..	97,525.00	0.00	54,482.87	0.00	0.00
26	Memphis, Tenn....	0.00	0.00	321,399.46	0.00	0.00
27	Lowell, Mass.....	48,160.00	0.00	83,923.64	30,467.87	0.00
28	Portland, Ore.....	160,000.00	0.00	54,300.96	0.00	0.00
29	Cambridge, Mass..	133,086.50	0.00	40,139.71	28,753.48	0.00
30	Atlanta, Ga.....	67,390.00	0.00	76,745.06	27,025.99	0.00
31	Albany, N. Y.....	65,107.75	0.00	110,387.32	0.00	138.38
32	Grand Rapids, Mich.	45,578.00	0.00	80,142.83	0.00	0.00
33	Seattle, Wash.....	112,600.00	0.00	59,803.88	0.00	0.00
34	Hartford, Conn....	27,000.00	0.00	50,995.54	33,483.40	0.00
35	Richmond, Va.....	See remark.	0.00	38,184.78	0.00	0.00
36	Reading, Pa.....	16,572.00	0.00	50,430.68	940.45	0.00
37	Nashville, Tenn...	73,240.00	0.00	69,046.00	0.00	0.00
38	Wilmington, Del..	See remark.	0.00	78,589.68	0.00	0.00
39	Lynn, Mass.....	91,144.95	0.00	89,588.39	0.00	0.00
40	New Bedford, Mass.	74,180.00	0.00	76,148.46	0.00	0.00
41	Somerville, Mass..	55,386.73	0.00	53,984.18	0.00	0.00
42	Lawrence, Mass...	32,080.00	0.00	61,675.68	0.00	0.00
43	Springfield, Mass.	61,000.00	211.63	41,230.91	18,157.63	0.00
44	Savannah, Ga.....	0.00	0.00	42,756.03	20,093.88	0.00
45	Evansville, Ind....	24,000.00	0.00	25,176.04	6,198.08	2,483.31
		See remark.				
67	Manchester, N. H.	33,780.00	0.00	24,209.53	0.00	0.00
68	Erie, Pa.....	0.00	0.00	56,195.12	0.00	0.00
69	Harrisburg, Pa....	26,756.00	2,000.00	32,414.71	14,477.77	0.00
70	Yonkers, N. Y.....	83,050.00	0.00	76,518.40	0.00	0.00
71	Holyoke, Mass.....	12,875.00	21,243.00	30,648.16	5,134.37	0.00
72	Fort Wayne, Ind..	0.00	0.00	35,000.00	50,000.00	0.00
73	Dallas, Tex.....	36,000.00	0.00	21,949.26	16,410.00	0.00
74	Brockton, Mass....	44,450.00	0.00	24,941.42	0.00	0.00
75	Newton, Mass.....	100,475.00	0.00	22,606.00	0.00	0.00
76	Chelsea, Mass.....	37,166.71	0.00	20,553.82	0.00	0.00
77	Fitchburg, Mass...	23,420.00	233.30	36,192.66	0.00	0.00
		See remark.				
132	Taunton, Mass....	33,343.00	0.00	29,133.23	0.00	0.00
133	Sacramento, Cal..	6,000.00	0.00	32,117.83	0.00	0.00
134	Newport, Ky.....	24,456.00	2,296.51	17,378.65	67.99	0.00
9	San Francisco, Cal.	722,224.94	324,368.70	566,786.98	0.00	0.00

Number in Bul. No. 20, U. S. Census 1903.	CITY.	FINANCIAL RECORD FOR THE YEAR.			
		EXPENDITURES.			
		Total Expenses.	Net Revenue.	PAYMENTS FOR PROPERTY.	
				Bonds Paid.	Payment to Sinking Fund.
A	1.	62.	63.	64.	65.
		57+58+59 +60+61.	52-62.	Orig.	Orig.
1	Chicago, Ill.....	\$ 1,798,143.34	\$ 2,020,740.77	\$ 500,000.00	\$
2	Philadelphia, Pa...	2,133,640.64	1,461,113.33	0.00	See remark.
3	St. Louis, Mo.....	904,240.10	870,333.96	0.00	300,000.00
4	Boston, Mass.....	2,317,189.00	78,236.23	300,000.00	307,852.32
5	Baltimore, Md....	801,296.03	61,448.00	0.00	177,837.63
6	Cleveland, O.....	409,082.55	534,898.28	0.00	0.00
7	Buffalo, N. Y.....	568,628.63	190,067.23	85,750.00	0.00
8	Pittsburg, Pa.....	753,517.66	324,064.90		
10	Cincinnati, O.....	782,907.29	82,856.40	0.00	115,655.00
11	Milwaukee, Wis....	203,358.18	277,450.67	81,250.00	
12	Detroit, Mich.....	220,426.34	309,176.65	90,000.00	0.00
13	Washington, D. C.	180,000.00	220,000.00	0.00	0.00
15	Louisville, Ky.....	238,475.79	192,866.79	730,079.37	37,256.91
18				bills payable	
19	Minneapolis, Minn.	172,677.69	113,771.43	0.00	See remark.
21	Providence, R. I...	358,637.63	262,379.11	3,000.00	260,507.58
22	Kansas City, Mo...	393,487.21	328,371.63	27,000.00	0.00
24	Rochester, N. Y...	336,142.93	120,221.32	0.00	55,000.00
30	Los Angeles, Cal...	274,022.25	498,956.04	50,000.00	67,000.00
33	Fall River, Mass...	152,007.87	84,149.82	0.00	39,877.00
34	Memphis, Tenn....	321,399.46	46,562.36	50,000.00	50,000.00
39	Lowell, Mass.....	162,581.51	50,862.28	21,600.00	0.00
40				Notes	
40	Portland, Ore.....	214,300.90	179,145.29	0.00	0.00
41	Cambridge, Mass...	201,979.69	150,282.61	0.00	121,552.50
42	Atlanta, Ga.....	171,161.05	27,911.25	0.00	0.00
43	Albany, N. Y.....	175,633.45	155,545.31	91,100.00	46,000.00
44	Grand Rapids, Mich.	125,720.13	1,414.30	0.00	0.00
46	Seattle, Wash.....	172,403.88	204,454.75	0.00	0.00
47	Hartford, Conn....	111,478.94	154,865.70	0.00	102,331.84
48	Richmond, Va.....	38,184.78	123,935.50	See remark.	
49	Reading, Pa.....	69,488.37	119,120.74	0.00	7,500.00
50	Nashville, Tenn...	142,286.00	29,654.13	0.00	17,194.00
51	Wilmington, Del...	78,589.61	121,125.59	9,500.00	See remark.
56	Lynn, Mass.....	180,733.34	41,557.15	8,000.00	41,127.45
58	New Bedford, Mass.	150,328.48	67,512.78	30,000.00	12,000.00
59	Somerville, Mass...	109,370.91	119,888.28	23,000.00	15,748.24
60	Lawrence, Mass...	93,755.08	23,095.83	0.00	15,429.00
61	Springfield, Mass.	120,600.17	140,125.72	575,000.00	116,954.00
63	Savannah, Ga.....	62,849.91	36,012.11	0.00	0.00
66	Evansville, Ind....	57,857.43	20,363.64	0.00	See remark.
67	Manchester, N. H.	57,989.53	70,426.70	0.00	242.00
75	Erie, Pa.....	56,195.12	95,044.06	0.00	
79	Harrisburg, Pa....	75,647.48	47,606.18	0.00	42,460.00
80	Yonkers, N. Y....	159,568.40	6,837.78	50,000.00	21,000.00
85	Holyoke, Mass....	69,920.59	41,593.43	0.00	5,135.00
86	Fort Wayne, Ind...	85,000.00	0.00	0.00	0.00
92	Dallas, Tex.....	74,359.26	72,640.74	0.00	36,000.00
94	Brockton, Mass...	69,391.42	34,690.87	0.00	27,755.30
122	Newton, Mass.....	123,081.00	10,437.40	0.00	0.00
126	Chelsea, Mass.....	57,720.53	56,461.65	0.00	13,535.45
127	Fitchburg, Mass...	59,845.86	9,012.73	36,000.00	16,000.00
132				See remark.	
132	Taunton, Mass...	62,476.23	6,981.70		2,406.86
147	Sacramento, Cal..	38,117.83	78,125.07	4,000.00	
150	Newport, Ky.....	44,199.15	10,111.22	39,000.00	5,544.00
9	San Francisco, Cal.	1,613,380.62	574,056.12		

Number in Bul. No. 20, U. S. Census 1903.	CITY.	FINANCIAL RECORD FOR THE YEAR.		
		EXPENDITURES.		
		PAYMENTS FOR PROPERTY.		Grand Total Paid Out During Year.
		Construction.	Total.	
A	1.	66.	67.	68.
		Orig.	64+65+66.	62+67.
1		\$	\$	\$
2	Chicago, Ill.	1,294,624.47	1,794,624.47	3,592,767.81
3	Philadelphia, Pa. . .	6,074,269.48	6,074,269.48	8,207,910.12
4	St. Louis, Mo.	595,651.12	895,651.12	1,765,985.08
5	Boston, Mass.	2,665,641.86	3,273,494.18	5,590,683.18
6	Baltimore, Md.	100,747.54	278,585.17	1,079,881.20
7	Cleveland, O.	844,921.31	844,921.31	1,374,819.59
8	Buffalo, N. Y.	58,288.10	144,038.10	712,666.73
10	Pittsburg, Pa.			
11	Cincinnati, O.	1,144,904.55	1,260,559.55	2,043,466.84
12	Milwaukee, Wis.	169,744.51	250,994.51	454,352.69
13	Detroit, Mich.	409,735.54	499,735.54	720,161.93
15	Washington, D. C. .	220,000.00	220,000.00	400,000.00
18	Louisville, Ky.	180,733.02	948,068.93	1,186,544.72
19	Minneapolis, Minn. .	330,822.09	330,822.09	503,499.78
21	Providence, R. I. . .	72,958.95	726,466.53	695,104.16
22	Kansas City, Mo. . .	457,172.39	484,172.39	877,659.60
24	Rochester, N. Y. . .	39,388.56	94,388.56	430,531.49
30	Los Angeles, Cal. . .	508,141.46	625,141.46	899,163.74
33	Fall River, Mass. . .	20,000.00	59,877.00	211,884.87
34	Memphis, Tenn.	96,312.85	196,312.85	517,712.31
39	Lowell, Mass.	10,914.33	32,514.33	195,095.84
40	Portland, Ore.	143,342.70	143,342.70	357,643.66
41	Cambridge, Mass. . .	28,853.45	150,405.95	352,385.64
42	Atlanta, Ga.	123,860.83	123,860.83	295,021.88
43	Albany, N. Y.	8,919.80	146,019.80	321,653.25
44	Grand Rapids, Mich. .	65,384.77	65,384.77	191,105.60
46	Seattle, Wash.	270,396.72	270,396.72	442,800.60
47	Hartford, Conn.	45,700.24	148,032.08	259,511.02
48	Richmond, Va.	85,861.10	85,861.10	124,045.88
49	Reading, Pa.	142,798.60	150,298.60	219,786.97
50	Nashville, Tenn.	0.00	17,194.00	159,480.00
51	Wilmington, Del. . .	48,750.76	58,250.76	209,212.27
56	Lynn, Mass.	136,019.13	177,146.58	357,879.92
58	New Bedford, Mass. .	44,579.27	86,579.27	236,907.73
59	Somerville, Mass. . .	143,377.35	182,125.64	291,496.55
60	Lawrence, Mass. . .	14,991.18	30,420.18	124,175.87
61	Springfield, Mass. .	22,926.12	714,880.12	835,480.29
63	Savannah, Ga.			
66	Evansville, Ind.	35,513.03	35,513.03	93,370.46
67	Manchester, N. H. . .	153,422.04	177,627.04	235,616.57
75	Erie, Pa.	36,044.84	36,044.84	92,239.90
79	Harrisburg, Pa.	5,207.00	47,567.00	123,314.48
80	Yonkers, N. Y.	102,325.61	73,325.61	332,894.01
85	Holyoke, Mass.	89,011.57	94,146.57	164,067.16
86	Fort Wayne, Ind. . .	21,594.00	21,594.00	106,594.00
92	Dallas, Tex.	80,000.00	116,000.00	190,359.26
94	Brockton, Mass.	283,698.31	311,453.61	380,845.03
122	Newton, Mass.	37,367.60	37,367.60	160,448.60
126	Chelsea, Mass.	70,648.16	84,183.61	141,904.14
127	Fitchburg, Mass.	6,607.00	58,607.00	118,452.86
132	Taunton, Mass.	13,907.83	16,314.69	78,790.92
147	Sacramento, Cal. . .			
150	Newport, Ky.	4,329.09	48,873.09	93,072.24
9	San Francisco, Cal. .			

Number in Bul. No. 20, U. S. Census 1903.	CITY.	FINANCIAL RECORD FOR THE YEAR.			
		Amount Invested per Million Gallons Daily Capacity of Plant.	Amount Invested per Million Gallons Daily Delivery of Plant.	Amount Invested per Mile of Mains.	Amount Invested per Tap.
		1.	2.	3.	4.
A		69.	70.	71.	72.
		40	40	40	40
		12	32	13	14
1					
2	Chicago, Ill.....	\$ 70,748.00	\$ 99,149.00	\$ 19,257.00	\$ 164.34
3	Philadelphia, Pa....	65,927.00	113,117.00	25,608.00	148.10
4	St. Louis, Mo.....	141,250.00	323,203.00	30,997.00	303.33
5	Boston, Mass.....		562,822.00	61,895.00	502.07
6	Baltimore, Md....	72,191.00	203,802.00	20,913.00	124.06
7	Cleveland, O.....	149,790.00	216,130.00	21,435.00	216.34
8	Buffalo, N. Y.....	53,476.00	78,291.00	19,481.00	146.61
10	Pittsburg, Pa.....	102,041.00	147,929.00	27,701.00	250.00
11	Cincinnati, O.....	160,978.00	317,177.00	32,274.00	381.85
12	Milwaukee, Wis...	115,472.00	202,179.00	13,956.00	111.66
13	Detroit, Mich.....	47,000.00	120,298.00	11,088.00	107.87
15	Washington, D. C.				
18	Louisville, Ky.....		371,940.00	24,952.00	263.02
19	Minneapolis, Minn.	75,874.00	248,464.00	17,737.00	218.40
21	Providence, R. I...	218,997.00	500,962.00	18,933.00	281.58
22	Kansas City, Mo...	87,584.00	272,461.00	16,532.00	182.89
24	Rochester, N. Y...	269,736.00	508,139.00	26,127.00	214.75
30	Los Angeles, Cal...		126,489.00	6,830.00	86.33
33	Fall River, Mass...	111,686.00	469,968.00	21,206.00	267.98
34	Memphis, Tenn....	129,009.00	213,573.00	17,210.00	198.47
39	Lowell, Mass.....	248,353.00	565,851.00	22,475.00	268.03
40	Portland, Ore.....	185,733.00	185,733.00	21,537.00	217.33
41	Cambridge, Mass...	575,066.00	664,089.00	45,858.00	391.43
42	Atlanta, Ga.....	64,982.00	334,069.00	15,472.00	195.19
43	Albany, N. Y.....	177,541.00	185,613.00	26,698.00	199.31
44	Grand Rapids, Mich.	52,155.00	109,208.00	10,212.00	123.51
46	Seattle, Wash.....	145,362.00	245,998.00	4,874.00	283.18
47	Hartford, Conn....	444,847.00	479,401.00	24,568.00	325.85
48	Richmond, Va.....	93,125.00	188,744.00	21,105.00	137.96
49	Reading, Pa.....	143,830.00	214,451.00	21,043.00	122.28
50	Nashville, Tenn...	83,766.00	202,498.00	29,461.00	282.87
51	Wilmington, Del...	106,250.00	217,097.00	15,111.00	113.08
56	Lynn, Mass.....	147,931.00	547,088.00	20,817.00	216.21
58	New Bedford, Mass.	213,421.00	465,211.00	32,281.00	345.66
59	Somerville, Mass...		398,225.00	26,173.00	213.17
60	Lawrence, Mass...	448,974.00	792,210.00	26,820.00	346.27
61	Springfield, Mass...	191,616.00	191,616.00	14,902.00	214.11
63	Savannah, Ga.....	55,321.00	129,464.00	17,590.00	
66	Evansville, Ind....	35,904.00	134,642.00	13,464.00	173.17
67	Manchester, N. H.	172,270.00	558,113.00	16,661.00	295.03
75	Erie, Pa.....	76,681.00	211,053.00	16,626.00	149.39
79	Harrisburg, Pa....	79,160.00	117,976.00	19,270.00	74.20
80	Yonkers, N. Y....	118,621.00	372,439.00	19,510.00	313.53
85	Holyoke, Mass....	162,861.00	275,026.00	16,210.00	372.23
86	Fort Wayne, Ind...	92,493.00	298,360.00	15,416.00	138.74
92	Dallas, Tex.....	78,947.00	263,234.00	16,484.00	200.00
94	Brockton, Mass...	165,946.00	898,671.00	15,473.00	226.97
122	Newton, Mass.....	860,790.00	1,020,344.00	15,448.00	290.65
126	Chelsea, Mass.....		362,367.00	32,858.00	200.94
127	Fitchburg, Mass...	156,399.00	398,107.00	15,844.00	233.28
132	Taunton, Mass....	87,192.00	860,661.00	16,227.00	275.17
147	Sacramento, Cal...	24,925.00	60,600.00	9,064.00	76.69
150	Newport, Ky.....	211,500.00	469,739.00	26,688.00	161.48
9	San Francisco, Cal.	689,268.00	737,557.00	56,857.00	489.84

Number in Bul. No. 20, U. S. Census 1903.	CITY.	FINANCIAL RECORD FOR THE YEAR.			
		Amount Invested per Capita.	Amount Invested per Consumer.	Total Expenses for Taxes, Misc. Inter- ests, Maintenance and Operation, Bond and Sinking Fund Payment per Million Gallons Delivered.	Expenses for Taxes, Interest, Mainte- nance, Operation and Miscellaneous per Million Gallons De- livered.
		73.	74.	75.	76.
A	1.	40	40	62+64+65	62
		4	6	22	22
1		\$	\$	\$	\$
2	Chicago, Ill.....	19.58	19.58	16.71	13.08
3	Philadelphia, Pa...	26.86	27.02	See remark.	17.86
4	St. Louis, Mo.....	32.58	45.20	47.02	35.34
5	Boston, Mass.....	75.78	75.78	99.55	78.86
6	Baltimore, Md.....	24.11	24.11	42.78	35.01
7	Cleveland, O.....	29.05	29.75	19.03	19.03
8	Buffalo, N. Y.....	25.00	25.00	14.03	12.19
10	Pittsburg, Pa.....	26.67	26.67		30.54
11	Cincinnati, O.....	41.28	43.25	54.18	47.21
12	Milwaukee, Wis...	16.34	16.86	29.68	21.21
13	Detroit, Mich.....	18.63	21.48	14.28	10.14
15	Washington, D. C.			7.00	7.00
18	Louisville, Ky.....	26.98	38.28	155.69	36.91
19	Minneapolis, Minn.	22.59	32.80	See remark.	23.12
21	Providence, R. I...	32.40	32.40	129.97	74.92
22	Kansas City, Mo...	18.30	18.30	76.25	71.36
24	Rochester, N. Y...	45.74	45.74	69.61	59.82
30	Los Angeles, Cal...	17.97	18.17	39.57	27.73
33	Fall River, Mass...	17.70	17.85	122.90	97.34
34	Memphis, Tenn....	17.20	21.50	95.30	72.68
39	Lowell, Mass.....	28.66	28.66	95.81	84.57
40	Portland, Ore.....	35.66	37.15	24.46	24.46
41	Cambridge, Mass..	59.48	59.48	102.35	63.90
42	Atlanta, Ga.....	18.95	30.32	68.88	68.88
43	Albany, N. Y.....	35.51	35.51	44.79	25.15
44	Grand Rapids, Mich.	15.65	26.08	24.37	24.37
46	Seattle, Wash.....	22.84	27.81	36.33	36.33
47	Hartford, Conn....	35.11	36.48	83.94	43.77
48	Richmond, Va.....	22.35	22.35	See remark.	
49	Reading, Pa.....	25.62	25.65	20.37	18.39
50	Nashville, Tenn...	27.92	51.29	35.28	31.43
51	Wilmington, Del..	20.73	20.73	30.82	27.50
56	Lynn, Mass.....	34.70	35.13	122.58	96.40
58	New Bedford, Mass.	44.88	52.12	75.87	59.30
59	Somerville, Mass..	34.53	34.53	69.85	51.57
60	Lawrence, Mass...	32.07	33.76	105.46	90.65
61	Springfield, Mass..	33.74	41.52	213.69	28.24
63	Savannah, Ga....		14.75	20.15	20.15
66	Evansville, Ind....	16.57	35.90	19.81	19.81
67	Manchester, N. H.	28.71	31.32	See remarks.	
75	Erie, Pa.....	34.01	45.64	72.95	51.47
79	Harrisburg, Pa....	15.32	15.83	16.95	16.95
80	Yonkers, N. Y....	31.77	32.35	40.19	25.74
85	Holyoke, Mass....	28.27	28.60	132.20	91.49
86	Fort Wayne, Ind...	21.34	27.74	40.85	38.06
92	Dallas, Tex.....	19.55	31.91	51.14	51.14
94	Brockton, Mass...	29.18	33.19	53.06	35.75
122	Newton, Mass.....	57.23	58.64	180.17	128.69
126	Chelsea, Mass.....	35.23	35.23	159.89	159.89
127	Fitchburg, Mass...	32.20	37.75	55.78	45.18
132	Taunton, Mass....	42.11	47.82	11.18	59.49
147	Sacramento, Cal...	15.11	15.11	116.97	112.63
150	Newport, Ky.....	16.59	17.27	13.96	12.63
				75.62	67.19
9	San Francisco, Cal.	64.68	64.68		134.77

Number in Bul. No. 20, U. S. Census 1903.	CITY.	FINANCIAL RECORD FOR THE YEAR.				
		Expenses for Main- tenance and Opera- tion per Million Gallons Delivered.	Ordinary Receipts per Million Gallons.	Total Cost per Annum, Based on Revenue Received From All Consumers, Public Ser- vice, Taxes and Miscel- laneous.		
				Per Capita.	Per Consumer.	Per Tap.
A	1.	77.	78.	79.	80.	81.
		59+60	52	52	52	52
		22	22	4	6	14
1		\$	\$	\$	\$	\$
2	Chicago, Ill.....	11.23	27.77	2.00	2.00	16.80
3	Philadelphia, Pa...	12.24	30.09	2.61	2.62	14.33
4	St. Louis, Mo.....	26.53	69.34	2.56	3.55	23.82
5	Boston, Mass.....	32.42	81.53	4.01	4.01	26.61
6	Baltimore, Md....	18.41	37.70	1.63	1.63	8.38
7	Cleveland, O.....	11.49	43.91	2.15	2.21	16.04
8	Buffalo, N. Y.....	8.92	16.27	1.90	1.90	11.12
10	Pittsburg, Pa.....		43.67	2.87	2.87	26.94
11	Cincinnati, O.....	39.68	52.80	2.50	2.61	23.08
12	Milwaukee, Wis....	18.98	50.13	1.48	1.53	10.13
13	Detroit, Mich.....	7.33	24.37	1.38	1.59	8.00
15	Washington, D. C.	7.00	15.56	1.25	1.25	7.55
18	Louisville, Ky.....	20.35	66.77	1.77	2.51	17.22
19	Minneapolis, Minn.	18.07	38.36	1.27	1.85	12.30
21	Providence, R. I...	27.20	129.73	3.06	3.06	26.61
22	Kansas City, Mo...	46.04	130.90	3.21	3.21	32.07
24	Rochester, N. Y...	20.82	81.22	2.67	2.67	12.53
30	Los Angeles, Cal...	11.39	78.22	4.07	4.11	19.54
33	Fall River, Mass...	34.90	151.26	2.08	2.10	31.48
34	Memphis, Tenn....	72.68	83.21	2.45	3.07	28.30
39	Lowell, Mass.....	59.50	111.03	2.05	2.05	19.20
40	Portland, Ore.....	6.20	44.91	3.15	3.28	19.22
41	Cambridge, Mass...	21.80	111.45	3.64	3.64	23.98
42	Atlanta, Ga.....	41.76	80.11	1.66	2.65	17.09
43	Albany, N. Y.....	15.81	47.43	3.31	3.31	18.59
44	Grand Rapids, Mich.	15.54	24.65	1.27	2.12	9.93
46	Seattle, Wash.....	12.60	79.42	2.69	3.27	33.31
47	Hartford, Conn....	33.17	104.57	2.80	2.91	26.01
48	Richmond, Va.....	8.83	37.51	1.62	1.62	10.01
49	Reading, Pa.....	13.35	49.91	2.18	2.19	10.42
50	Nashville, Tenn....	15.24	37.95	1.91	3.51	19.35
51	Wilmington, Del..	27.50	69.88	2.44	2.44	13.28
56	Lynn, Mass.....	47.78	118.55	2.74	2.78	17.10
58	New Bedford, Mass.	30.04	85.93	3.03	3.31	21.94
59	Somerville, Mass...	25.46	108.11	3.42	3.42	21.12
60	Lawrence, Mass...	59.63	112.98	1.67	1.76	18.02
61	Springfield, Mass..	9.65	61.05	3.92	4.83	24.90
63	Savannah, Ga.....	20.15	31.69		1.32	
66	Evansville, Ind....	10.74	31.74	1.43	3.09	14.90
67	Manchester, N. H.	21.49	113.78	2.14	2.33	21.99
75	Erie, Pa.....	16.95	45.62	2.68	3.60	11.79
79	Harrisburg, Pa....	15.95	41.94	1.99	2.05	9.63
80	Yonkers, N. Y.....	43.87	95.43	2.97	3.03	29.32
85	Holyoke, Mass.....	16.68	60.70	2.28	2.30	29.98
86	Fort Wayne, Ind...	51.14	51.14	1.31	1.70	8.50
92	Dallas, Tex.....	84.44	70.67	1.92	3.13	19.60
94	Brockton, Mass....	46.26	193.03	2.29	2.60	17.79
122	Newton, Mass.....	29.36	173.58	3.55	3.64	18.03
126	Chelsea, Mass.....	16.08	89.38	3.17	3.17	18.09
127	Fitchburg, Mass....	35.98	68.45	2.03	2.37	14.67
132	Taunton, Mass.....	52.52	125.23	2.24	2.54	14.61
147	Sacramento, Cal...	10.64	38.51	3.52	3.52	17.88
150	Newport, Ky.	26.42	82.56	1.06	1.11	10.36
9	San Francisco, Cal.	47.35	182.72	5.86	5.86	44.41
9	San Francisco, Cal.		162.38	5.21	5.21	39.47

No. of City.	CITY.	Sources of Information and Remarks.
A	1.	
1		
2	Chicago, Ill.....	Report of Dept. of Public Works.
3	Philadelphia, Pa...	Report of Dept. of Public Works and Data Sheet. Bonds are part of city debt; city pays interest, sinking fund, &c.
4	St. Louis, Mo....	Report of Water Commissioner and Data Sheet.
5	Boston, Mass.....	Report of Water Commissioner; \$292,000 of Extraordinary Receipts is excess income of sinking fund.
6	Baltimore, Md....	Report of Water Board and Data Sheet.
7	Cleveland, O.....	Report of Water Works.
8	Buffalo, N. Y....	Report of Dept. of Public Works and Data Sheet.
10	Pittsburg, Pa....	Data Sheet.
11	Cincinnati, O....	Report of Water Department and Data Sheet.
12	Milwaukee, Wis...	Report of Board of Public Works.
13	Detroit, Mich....	Report of Water Commissioners.
15	Washington, D. C.	Data Sheet.
18	Louisville, Ky....	Report of Louisville Water Co. This a private corporation, but City owns all stock except two \$100.00 shares.
19	Minneapolis, Minn.	Report of Supervisors of Water Works. Water Works bonds are part of City debt; City pays interest and sinking fund for works; amounts do not seem to be kept separate.
21	Providence, R. I..	Report of City Engineer and Data Sheet.
22	Kansas City, Mo..	Report of Water Dept. and Data Sheet.
24	Rochester, N. Y...	Report of Dept. Public Works.
30	Los Angeles, Cal..	Report of Water Commissioners and Data Sheet.
33	Fall River, Mass..	Report of Water Board; maintenance and operation includes new service, &c.
34	Memphis, Tenn....	Data Sheet.
39	Lowell, Mass.....	Report of Water Board and Data Sheet.
40	Portland, Ore.....	Data Sheet. 24,000,000 gals. per day are delivered to the city by aqueduct. On warm days sometimes the full supply is used; otherwise part is wasted into the sewers.
41	Cambridge, Mass..	Report of Water Board and Data Sheet.
42	Atlanta, Ga.....	Report of Water Commissioners and Data Sheet. No separate sinking fund for water debt.
43	Albany, N. Y.....	Report of Water Dept. Cost is figure given in Census Bul. 20, p. 104.
44	Grand Rapids, Mich.	Data Sheet. Private Co. in competition. Year contained only 360 days.
46	Seattle, Wash....	Data Sheet. Consumption estimate from 1904 data.
47	Hartford, Conn....	Report of Water Commissioners and Data Sheet.
48	Richmond, Va....	Report of Supt. Water Works and Data Sheet. Bonds are part of city debt; city pays interest, sinking fund, &c.
49	Reading, Pa.....	Report of Water Commissioners.
50	Nashville, Tenn...	Municipal Reports and Data Sheet.
51	Wilmington, Del..	Report of Water Dept. and Data Sheet. Water Works turns over its profits to city and city pays interest and sinking fund charges.
56	Lynn, Mass.....	Report of Water Board.
58	New Bedford, Mass.	Report of Water Board and Data Sheet.
59	Somerville, Mass..	Report of Water Commissioner. Metropolitan assessment of \$77,288.43 included in Maintenance and Operation.
60	Lawrence, Mass...	Report of Water Board.
61	Springfield, Mass.	Report of Water Commissioners.
63	Savannah, Ga....	Data Sheet. Census figure for cost (Col. 41) used in Col. 40.
66	Evansville, Ind....	Report of Comptroller and Data Sheet. Bonds are part of city's debt.
67	Manchester, N. H.	Report of Water Commissioners and Data Sheet.
75	Erie, Pa.....	Report of Water Commissioners and Data Sheet. Water bonds are part of city's debt. Water dept. pays interest as its revenues permit. Did not pay any in 1903.
79	Harrisburg, Pa....	Data Sheet. 55% of consumption is for non-domestic uses.
80	Yonkers, N. Y....	Report of Water Commissioners. \$83,554.41 rec'd for domestic water.
85	Holyoke, Mass....	Report of Water Board and Data Sheet.
86	Fort Wayne, Ind..	Data Sheet.
92	Dallas, Tex.....	Data Sheet.
94	Brockton, Mass...	Report of Water Commissioners.
122	Newton, Mass....	Report of Water Commissioners.
126	Chelsea, Mass....	Report of Water Commissioners.
127	Fitchburg, Mass...	Report of Water Commissioners. Water Works turns over its profits to city and city pays interest and sinking fund charges.
132	Taunton, Mass....	Report of Water Commissioners.
147	Sacramento, Cal..	Data Sheet. Census figure for cost (Col. 41) used in Col. 40.
150	Newport, Ky.....	Report of Water Works and Data Sheet. Bonds are part of city debt.
9	San Francisco, Cal.	Records of Board of Supervisors, information from officers of the company and testimony of H. Schussler, Ch. Engr., in 1904.

APPENDIX NO. 2.

LIST OF EXHIBITS FILED BY DEFENDANTS.

No. Ex.	Page Test'y.	Subject of Exhibit.
1	3144	Lands of the Clear Lake Water Works in Lake County.
2	3147	Table showing acreage, valuation and taxes on lands at Searsville from 1888 to 1903.
3	3148	Table showing valuation and taxes on the following lands for the years indicated: Locks Creek Line, 1888-1904; Millbrae Reservoir, 1898-1904; Camp Howard, 1888-1904.
4	3808	Reservoir site on Tuolumne River. Right of way application.
5	3809	Lake Eleanor reservoir. Right of way application.
6	3810	Lake Eleanor dam site.
7	3810	Hetch-Hetchy reservoir site.
8	3810	Hetch-Hetchy dam.
9	3820	Canal line and watersheds.
10	3821	Pipe line across San Joaquin Valley.
11	3823	Pipe line Altamont to San Francisco.
12	3824	Inverted siphons on canal line.
13	3824	Profile of pipe line across San Joaquin Valley.
14	3825	Profile of pipe line Altamont pumping station to San Francisco.
15	3826	Altamont pumping station force pipe.
16	3827	Canal section.
17	3827	Tunnel sections, main line.
18	3828	Bear Gulch power station pipe line.
19	3828	Dry Creek power station.
20	3829	Dry Creek power station pipe line.
21	3830	Altamont pumping station.
22	3831	Altamont reservoir.
23	3831	Belmont reservoir.
24	3833	City distributing system, northwest one-quarter.
25	3834	City distributing system, northeast one-quarter.
26	3834	City distributing system, southwest one-quarter.
27	3835	City distributing system, southeast one-quarter.
28	3835	Section of Ocean Avenue tunnel.
29	3835	Section of end walls Ocean avenue tunnel.
30	3835	Section of Mission street tunnel.
31	3836	Manhole on Mission street tunnel.
32	3836	Receiving reservoir No. 1.
33	3837	Receiving reservoir No. 2.
34	3837	Eighteenth street reservoir.
35	3838	Twenty-fourth street reservoir.
36	3838	Lone Mountain reservoir.
37	3839	Holly Park reservoir.
38	3839	University street reservoir.

No. Ex.	Page Test'y.	Subject of Exhibit.
39	3839	Ocean View reservoir. (Note: Nos. 4 to 39 inclusive are maps accompanying report on Tuolumne River project by C. E. Grunsky, July 28, 1902).
40		Map of the Bay Counties showing watersheds owned or claimed by the Spring Valley Water Company and the Bay Cities Water Company.
41	3948	Transcript of proceedings of the Superior Court of Pierce County, Washington, City of Tacoma vs. Tacoma Light and Water Company. Certified copy.
42	3973	Fourteenth annual report of the Commissioner of Labor, 1899. Water, Gas and Electric Light Plants.
43	4293	1st annual report of the Metropolitan Water Board, Jan. 1, 1896.
44	4293	2nd annual report of the Metropolitan Water Board, Jan. 1, 1897.
45	4293	3rd annual report of the Metropolitan Water Board, Jan. 1, 1898.
46	4294	4th annual report of the Metropolitan Water Board, Jan. 1, 1899.
47	4294	5th annual report of the Metropolitan Water Board, Jan. 1, 1900.
48	4294	6th annual report of the Metropolitan Water Board, Jan. 1, 1901.
49	4294	1st annual report of the Metropolitan Water and Sewerage Board, Jan. 1, 1902.
50	4295	2d annual report of the Metropolitan Water and Sewerage Board, Jan. 1, 1903.
51	4295	3d annual report of the Metropolitan Water and Sewerage Board, Jan. 1, 1904.
52	5610	Water rules, regulations and rates of the Pasadena Land and Water Company. Also copy of Resolution No. 1076 of the Board of Trustees of Pasadena fixing water rates.
53	5610	Resolution of the Board of Trustees of Pasadena. Resolution fixing water rates. (Copy.)
54	5649	Contract between Southern California Mountain Water Company and the City of San Diego. Company to deliver water in distributing reservoirs owned by San Diego for 4 cents per 1000 gallons. (Certified copy.)
55	5662	Report on the value of the plant and Water Supply of the North Pasadena Land and Water Company by James D. Schuyler, Consulting Engineer. (Certified copy.)
56	5729	Cost of engines at the Spring Valley Water Works. Pumping stations. Estimates by W. R. Eckart.
57	5749	Details, diagrams and photographs of pumping plants. Notes by W. R. Eckart.
58	23	Agreement between Robert Higgins and the Spring Valley Water Works, dated October 9, 1883, relative to the construction of "a tunnel from a point on the north side of Visitacion Valley to a point near the junction of Bowdoin and Dwight streets in South San Francisco."

No. Ex.	Page Test'y.	Subject of Exhibit.
59	146	Blue Print entitled "Bay Cities Water Company, discharge diagram for Uvas Creek on Catherine Dunn Ranch, Santa Clara County, California, July 30, 1904, San Francisco office, September 1, 1903, to August 31, 1904."
60	150	Photograph. Rivetted pipe on trestle within limits of County Road in Alameda County, California, between Alvarado and Mt. Eden. Photo by Edwin Duryea, Jr., April 16, 1903.
61	155	Report of the City of San Francisco, California, issued by the National Board of Fire Underwriters, Committee of Twenty.
62	227	Municipal reports of San Francisco for 1900-1901.
63	322	Bottle containing water taken from Lake San Andreas, Dec. 5, 1903, 11.15 a. m.
64	322	Bottle containing water taken from Pilarcitos, Dec. 5, 1903, 1.30 p. m.
65	322	Bottle containing water taken from Crystal Springs, Dec. 5, 1903, 3.30 p. m.
66	322	Bottle containing water taken from Lake Merced, Dec. 8, 1903.
67	323	Bottle containing water taken from Tuolumne River. Sample No. 1.
68	323	Bottle containing water from Tuolumne River. Sample No. 2.
69	529	Diagram No. 3 showing amount invested in water works of cities per million gallons daily delivery.
70	531	Diagram No. 4, showing amount invested per million gallons daily capacity.
71	539	Diagram No. 2, showing actual receipts of water works per million gallons delivered.
72	542	Diagram No. 1, showing actual receipts of water works per consumer.
73	542	Table No. 1, statistics of water supplies in Cities of the United States having municipal water works.
74	543	Diagram No. 9, showing expenses of operating and maintenance of water works, per million gallons delivered.
75	544	Diagram No. 10, showing amount invested per mile of mains.
76	545	Diagram No. 11, showing amount invested per consumer.
77	545	Diagram No. 12, showing actual total ordinary receipts of water works.
78	548	Table No. 2, showing theoretical receipts if plants were privately owned.
79	550	Diagram No. 5, showing theoretical receipts per million gallons.
80	551	Diagram No. 6, showing theoretical receipts per consumer.
81	552	Diagram No. 13, showing theoretical total receipts of water works if plants were privately owned.

No. Ex.	Page Test'y.	Subject of Exhibit.
82	554	Table No. 3, comparison of actual and theoretical receipts of water works.
83	555	Diagram No. 7, showing comparison of actual and theoretical receipts per consumer.
84	556	Diagram No. 8, showing comparison of actual and theoretical rates per million gallons delivered.
85	560	Average cost of salaries and wages per million gallons of water furnished—based upon data collected from 309 private plants and 492 municipal plants by the U. S. Commission of Labor for the year ending 1898. 14th annual report, 1899, p. 31. Tables and diagrams. Blue print.
86	573	Map entitled "Rainfall distribution near San Francisco by C. E. Grunsky, City Engineer, Nov., 1903." Shows watersheds of Spring Valley streams, and watershed on which the Bay Cities Water Company claims the flood waters on Alameda Creek.
87	582	Average mean monthly flow of Tuolumne River at La Grange for 9 years from 1896 to 1904 inclusive.
88	589	Profile of San Mateo Dam (Crystal Springs Concrete Dam) and profiles of various types of masonry dams. Drawn to show relative areas of cross sections. Blue print.
89	590	"Composite Dam Sections"—showing San Mateo Dam at the proposed height for which originally designed compared with other sections of dams.
90	591	"Composite Dam Sections"—showing San Mateo Dam at present height compared with other sections of dams. Blue line print.
91	603	Map showing lands of the Spring Valley Water Company in the peninsula reservoir system comprising the lands in the Crystal Springs, San Andreas and Pilarcitos reservoir systems.
92	574	"Run-off Curves (revised) showing probable annual run-off in its relation to total annual rainfall. By C. E. Grunsky, City Engineer, San Francisco, Feb. 1904." Blue line print. Shows curves for Sierra Nevada and for Coast Range.
93	606	Map showing lands of the Spring Valley Water Company in Calaveras Valley, Alameda and Santa Clara County.
94	608	Lands in the vicinity of Pleasanton Wells and Sunol filter beds. Shows lands acquired from the Suburban Co.
95	611	Map showing water rights, lands and rights of way acquired by Spring Valley Water Works on Alameda Creek. Also the "Key Map" of lands in Alameda County.
96	612	Lands in Real Estate of the Spring Valley Water Company in San Francisco.
97	651	Spring Valley Water Company. Report of A. Wenzelburger, gives permanent improvements for 1901-1902 and 1903, and operating expenses for 1901, 1902 and 1903.

No. Ex.	Page Test'y.	Subject of Exhibit.
98	651	Spring Valley Water Company operating expenses 1901. A. Wenzelburger, 1902, 1903.
99	652	Spring Valley Water Company permanent improvements 1901, 1902 and 1903. A. Wenzelburger.
100	652	Spring Valley Water Company. Second report of A. Wenzelburger.
101	652	Spring Valley Water Works and Spring Valley Water Company construction accounts, 1860 to 1904; income and profit and loss account 1860 to 1904; sundry trial balances. A. Wenzelburger.
102	653	Spring Valley Water Company, salaries 1901, 1902 and 1903, Crystal Springs Dam Account 1886 to 1895, inclusive. A. Wenzelburger.
103	639	Map of lower end of Livermore Valley, Alameda County, Cal., showing contours of water level and location of wells. Prepared from official maps and original surveys by F. H. Tibbetts.
104	640	Section of lower end of Livermore Valley along line of main underground flow. Prepared by F. H. Tibbetts.
105	640	Diagram showing fluctuation in water plane level in wells in the vicinity of Pleasanton, California, September-December, 1905. Prepared by F. H. Tibbetts.
106	642	Photograph of well in Rancho del Valle taken in Nov., 1901, showing water flowing from same.
107	642	Photograph of well in same group as that shown in Exhibit 106, taken November, 1905. Water level 7 feet below surface of ground.

